A G E N D A
JAMES CITY COUNTY BOARD OF SUPERVISORS
REGULAR MEETING
County Government Center Board Room
101 Mounts Bay Road, Williamsburg, VA 23185
February 8, 2022
5:00 PM

A. CALL TO ORDER

B. ROLL CALL

C. MOMENT OF SILENCE

D. PLEDGE OF ALLEGIANCE

1. Pledge Leader - Jackson Merchant, student at Clara Byrd Baker Elementary and resident of the Berkeley District

E. PUBLIC COMMENT

F. CONSENT CALENDAR

G. PUBLIC HEARING(S)

1. Z-21-0015. 6940 and 6950 Richmond Road Proffer Amendment
2. SUP-21-0017. 4007 Ironbound Road Convenience Store with Fuel
3. SUP-21-0024. 158 Saddletown Road, Partlow Family Subdivision
4. Z-19-0006 and SUP-19-0005. Hazelwood Farms - The Enterprise Center

H. BOARD CONSIDERATION(S)

I. BOARD REQUESTS AND DIRECTIVES

J. REPORTS OF THE COUNTY ADMINISTRATOR

K. CLOSED SESSION

1. Consideration of personnel matter, the appointment of individuals to County Boards and/or Commissions pursuant to Section 2.2-3711 (A)(1) of the Code of Virginia
2. Appointment - Chesapeake Bay Board and Wetlands Board
3. Appointments - Colonial Behavioral Health Board
4. Appointment - Planning Commission

L. ADJOURNMENT

1. Adjourn until 1 pm on February 22, 2022 for the Business Meeting

AGENDA ITEM NO. D.1.

ITEM SUMMARY

DATE: 2/8/2022

TO: The Board of Supervisors

FROM: Teresa J. Saeed, Deputy Clerk

SUBJECT: Pledge Leader - Jackson Merchant, student at Clara Byrd Baker Elementary and resident of the Berkeley District

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REVIEWERS:

Department	Reviewer	Action	Date
Board Secretary	Saeed, Teresa	Approved	2/1/2022 - 3:33 PM

AGENDA ITEM NO. G.1.

ITEM SUMMARY

DATE: 2/8/2022

TO: The Board of Supervisors

FROM: Tom Leininger, Principal Planner

SUBJECT: Z-21-0015. 6940 and 6950 Richmond Road Proffer Amendment

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ATTACHMENTS:

	Description	Type
	Staff Report	Staff Report
	Ordinance	Ordinance
	Location Map	Backup Material
	Proposed Proffer Amendment	Backup Material
	Adopted Proffers Z-0003-2006	Backup Material
	SUP00212006 Resolution	Backup Material
	Z00032006 Adopted Master Plan	Backup Material
	Unapproved Minutes of the January 5, 2022, Planning Commission Meeting	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Planning	Holt, Paul	Approved	1/21/2022 - 3:28 PM
Development Management	Holt, Paul	Approved	1/21/2022 - 3:28 PM
Publication Management	Pobiak, Amanda	Approved	1/21/2022 - 3:54 PM
Legal Review	Kinsman, Adam	Approved	1/24/2022 - 9:37 AM
Board Secretary	Saeed, Teresa	Approved	1/24/2022 - 10:01 AM
Board Secretary	Purse, Jason	Approved	2/1/2022 - 2:31 PM
Board Secretary	Saeed, Teresa	Approved	2/1/2022 - 2:52 PM

SUMMARY FACTS

Applicant:	Mr. Doug Harbin
Land Owners:	Harbin Properties, LLC Buckets Car Wash, Inc.
Proposal:	A request to amend the adopted proffers for a parcel of land zoned B-1, General Business to revise the timing of the required signal warrant study
Locations:	6940 Richmond Road 6950 Richmond Road
Tax Map/Parcel Nos.:	2410100005C 2410100005B
Project Acreage:	5.33 +/- acres, total
Zoning:	B-1, General Business with Proffers
Comprehensive Plan:	Mixed Use
Primary Service Area: (PSA)	Inside
Staff Contact:	Tom Leininger, Principal Planner

PUBLIC HEARING DATES

Planning Commission:	January 5, 2022, 6:00 p.m.
Board of Supervisors:	February 8, 2022, 5:00 p.m.

FACTORS FAVORABLE

1. There are no proposed changes to the allowed uses on the property.
2. The requirement to complete a traffic signal warrant study remains intact.
3. Impacts: See Impact Analysis on Pages 3-4.

FACTORS UNFAVORABLE

1. Impacts: See Impact Analysis on Pages 3-4.

SUMMARY STAFF RECOMMENDATION

Staff recommends the Board of Supervisors approve of the proposed proffer amendment application.

PLANNING COMMISSION RECOMMENDATION

At its January 5, 2022, regular meeting, the Planning Commission voted 6-0 to recommend approval of the proffer amendment application request to the Board of Supervisors.

PROPOSED CHANGES MADE SINCE THE PLANNING COMMISSION MEETING

None.

PROJECT DESCRIPTION

Mr. Doug Harbin has submitted a request to amend Proffer No. 5d of the adopted proffers, dated August 31, 2006 (Attachment No. 3) which required the owner to post a bond or surety in a form acceptable to the County Attorney for the installation of a traffic signal at the main entrance prior to the issuance of the first building permit for construction on the property. As currently adopted, the signal warrant

study would be required within six months of the buildout of both properties or at an earlier date upon the request of the Virginia Department of Transportation. If a signal is warranted, the owner shall install the traffic signal. If the signal is not warranted, the owner shall have no further obligation with respect to the signal and its bond or surety shall be released by the County.

Per the applicant, Harbin Properties, LLC, has maintained a letter of credit in accordance with the 2006 proffer since the Colonial Car Wash at 6950 Richmond Road was built in 2009.

Currently, only one of the two properties have been developed and there is no current proposal for the undeveloped parcel. The existing car wash does not generate enough traffic to warrant a traffic signal.

Prior to the building permit for the car wash, the applicant posted a surety that guaranteed the installation of a future traffic signal. Each year, the surety is renewed and will continue to be renewed for an undetermined amount of time until the site is developed.

The proposed proffer would eliminate the need to renew the surety each year and it would require a traffic signal warrant study to be conducted prior to any final site plan approval of 6940 Richmond Road. If the signal is warranted, the traffic signal would be required to be installed prior to any occupancy permit for the site.

Should the proposed proffer amendment be adopted, the letter of credit maintained by Harbin Properties, LLC, would be released.

PLANNING AND ZONING HISTORY

1. In 2006, the Board of Supervisors approved the rezoning of approximately 5.33 acres of land bounded by Richmond Road, CSX Railroad, and Parcel No. 2430100015 from A-1, General Agricultural to B-1, General Business with Proffers (Case No. Z-0003-2006/MP-0004-2006).

2. In addition to the 2006 rezoning case, a Special Use Permit (SUP) was submitted and approved to allow for uses with a traffic generation rate which is over 100 peak hour trips (SUP-0021-2006).

3. In 2007, a site plan was submitted and approved for the Pleasant Hill Station Car Wash (SP-0060-2007). This proposal was for the present-day address of 6950 Richmond Road, Parcel No. 2410100005B. There have been two amendments to the original site plan (SP-0066-2009 and SP-0120-2015).

4. In 2008, a subdivision plat was submitted and approved to subdivide the 5.33 acres of land into two separate parcels identified as Parcel Nos. 2410100005B and 2410100005C (S-0044-2008).

5. To date, there has not been any approved site plan for 6940 Richmond Road, Parcel No. 2410100005C.

SURROUNDING ZONING AND DEVELOPMENT

The properties surrounding the parcels to the east are zoned A-1, General Agriculture and designated Economic Opportunity on the 2045 Comprehensive Plan Land Use Map.

Parcels to the west are zoned B-1, General Business and MU, Mixed Use and designated Mixed Use, Community Commercial, and Low Density Residential on the 2045 Comprehensive Plan Land Use Map.

Parcels to the north are zoned B-1, General Business and A-1, General Agriculture and are designated Low Density Residential on the 2045 Comprehensive Plan Land Use Map.

Parcels to the south are zoned B-1, General Business and are designated Mixed Use on the 2045 Comprehensive Plan Land Use Map.

Impacts/Potentially Unfavorable Conditions	**Status** *(No Mitigation Required/Mitigated/Not Fully Mitigated)*	**Considerations/Proposed Mitigation of Potentially Unfavorable Conditions**
Groundwater and Drinking Water Resources	Mitigated	- The project receives public water and sewer. - Per the adopted proffers a water conservation agreement was required and has been approved by James City Service Authority. - Staff finds this proposed proffer amendment does not generate impacts that require additional mitigation.
Watersheds, Streams, and Reservoirs	Mitigated	- The project is located predominantly within the Yarmouth Creek. - No new improvements are proposed. - Per the adopted proffers, a master stormwater management plan was submitted and approved for the properties.
Nearby and Surrounding Properties	No Mitigation Required	- The parcel is surrounded by commercial and undeveloped parcels. - Staff finds this proposed proffer amendment does not generate impacts that require additional mitigation.
Community Character	Mitigated	- Richmond Road is a Community Character Corridor (CCC). - Previously adopted proffers require all buildings to be a harmonious and uniform design and color scheme consistent with the car wash. - The previously adopted proffers require a 50-foot CCC buffer along Richmond Road. Additionally, enhanced landscaping is required for adjacent to building, parking lots, and the Best Management Plan landscaping. - Per the adopted proffers, all light poles shall not exceed 20 feet in height.
Cultural/Historic	No Mitigation Required	- No new land disturbance has been proposed.
Public Transportation: Vehicular	Mitigated	- The previously adopted proffers require a right-turn lane for each entrance and a bond or surety for the installation of a turn signal. - The proposed proffer will require a turn signal warrant study prior to site plan approval of 6940 Richmond Road.
Public Transportation: Bicycle/Pedestrian	Mitigated	- Per the Adopted Regional Bikeways Map and Pedestrian Accommodation's Master Plan, a bike lane and a sidewalk are required along Richmond Road. - Bicycle and pedestrian accommodations will be addressed during the development stage.

Impacts/Potentially Unfavorable Conditions	**Status** *(No Mitigation Required/Mitigated/Not Fully Mitigated)*	**Considerations/Proposed Mitigation of Potentially Unfavorable Conditions**
Public Safety	No Mitigation Required	- Staff finds this proposed proffer amendment does not generate impacts that require mitigation to the County's Fire Department facilities or services.
Public Schools	No Mitigation Required	- N/A since no residential dwelling units are proposed.
Public Parks and Recreation	No Mitigation Required	- N/A since no residential dwelling units are proposed.
Public Libraries and Cultural Centers	No Mitigation Required	- Staff finds this proposed proffer amendment does not generate impacts that require mitigation.
Covenants and Restrictions	No Mitigation Required	- The applicant has verified that he is not aware of any covenants or restrictions on the property that are in conflict with the proposed proffer amendment.

COMPREHENSIVE PLAN

The properties are designated Mixed Use on the 2045 Comprehensive Plan Land Use Map. The properties are also located along Richmond Road which is a CCC.

There are no specific mix of recommended land uses in Mixed Use; however, each development should be designed as a complete community to foster pedestrian access to a wide range of employment, residential, recreational, civic, and service opportunities. Each Mixed Use area should be located in the PSA and near intersections of collector or arterial streets. They are intended to serve as local community focal points with a friendly blend of useful services, shopping, or employment, and close-in housing just as in traditional town and village centers. These areas should be designed with a pedestrian focus with good multimodal connections to surrounding areas and recreation opportunities, designed as lower intensity areas to be compatible with surrounding context and with transition areas and step downs in densities to respect nearby historic and/or residential areas. There should also be a mix of uses that are compatible with the surrounding area and are consistent with the specific area descriptions below.

PROPOSED PROFFER AMENDMENT

The full text of the proposed proffer amendment is provided in Attachment No. 3.

STAFF RECOMMENDATION

Staff does not anticipate additional impacts to be generated by this proffer amendment. The proposed proffer amendment is mitigated by requiring a traffic signal warrant study prior to site plan approval for 6940 Richmond Road and should the study warrant a traffic signal, the signal would be required to be installed prior to Certificate of Occupancy for the site. The proffer amendment does not propose any change to the remaining proffers, and they will remain in effect for both properties.

Staff finds the proposal to be compatible with surrounding development and consistent with the adopted Comprehensive Plan. Staff recommends the Board of Supervisors approve of the proposed proffer amendment application.

TL/ap
RZ21-15_6940-50RichRdPrAmd

Attachments:
1. Ordinance
2. Location Map
3. Proposed Proffer Amendment
4. Proffers, Z-0003-2006, dated March 20, 2020
5. Resolution for SUP-0021-2006
6. Adopted Master Plan
7. Unapproved Minutes of the January 5, 2022, Planning Commission Meeting

ORDINANCE NO.

AN ORDINANCE TO AMEND EXISTING PROFFERS RECORDED AS INSTRUMENT NO. 060023805, APPROVED AS PART OF Z-0003-2006, TO AMEND THE TIMING OF THE TRAFFIC SIGNAL WARRANT STUDY AND AS DESCRIBED IN CASE NO. Z-21-0015

WHEREAS, on August 31, 2006, the Board of Supervisors approved Case No. Z-0003-2006 which included proffers that requires a traffic signal warrant study to be completed within six (6) of final buildout of the properties on the parcels located at 6950 and 6940 Richmond Road, James City County, Virginia, further identified as James City County Tax ID Parcel Nos. 2410100005B and 2410100005C, respectively (together, the "Property"); and

WHEREAS, Mr. Doug Harbin has applied for an amendment to the existing proffers on behalf of the owners, Buckets Car Wash Inc., and Harbin Properties LLC, to revise the timing of the required signal warrant study on the Property; and

WHEREAS, the Planning Commission, following its public hearing on January 5, 2022, recommended approval of Case No. Z-21-0015 by a vote of 6-0; and

WHEREAS, the Board of Supervisors of James City County, Virginia, finds Case No. Z-21-0015 to be required by public necessity, convenience, general welfare, and good zoning practice.

NOW, THEREFORE, BE IT ORDAINED by the Board of Supervisors of James City County, Virginia, that Case No. Z-21-0015 is hereby approved as described therein and the amended voluntary proffers are accepted.

_____
John J. McGlennon
Chairman, Board of Supervisors

ATTEST:

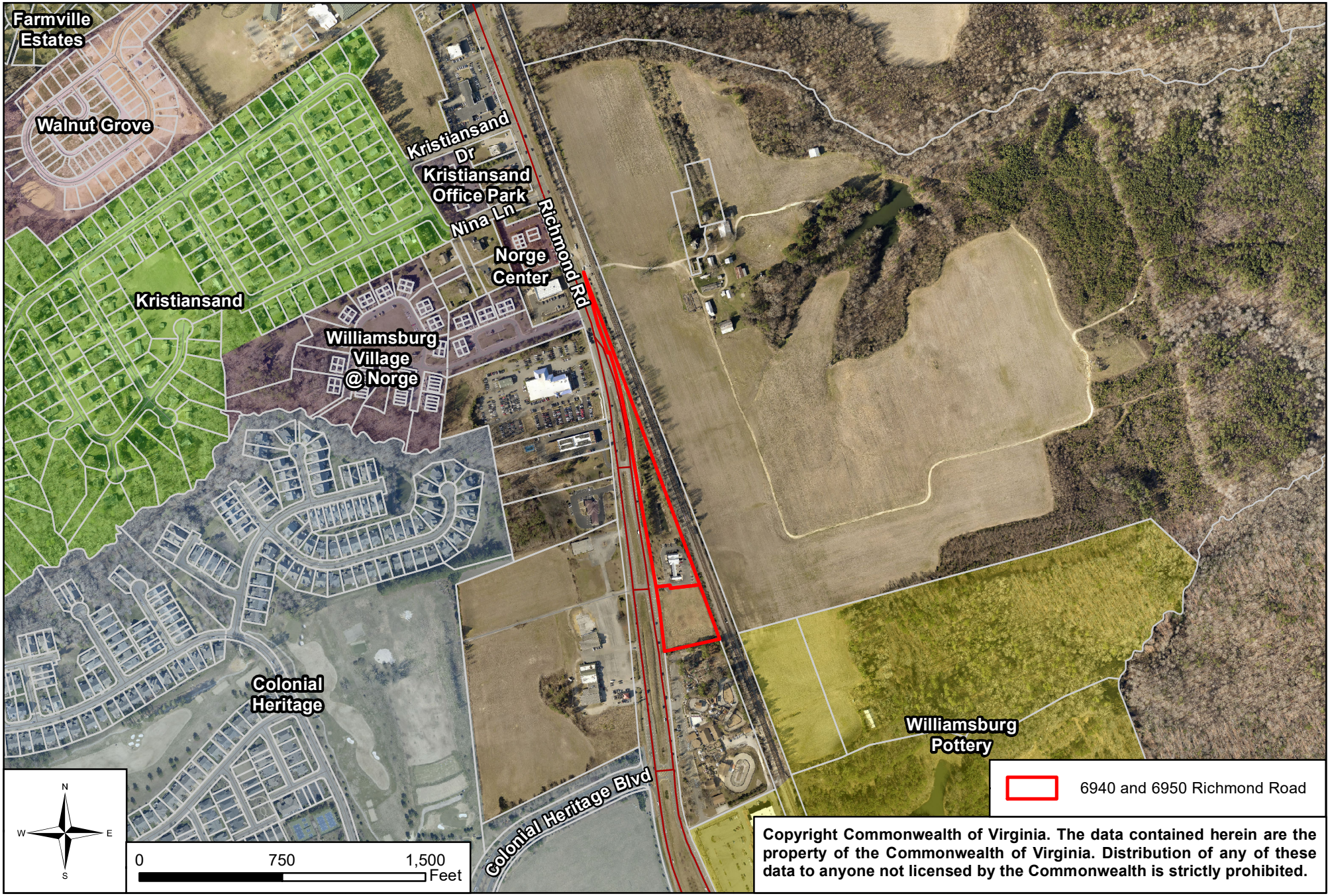
_____
Teresa J. Saeed
Deputy Clerk to the Board

	VOTES			
	AYE	NAY	ABSTAIN	ABSENT
ICENHOUR	____	____	____	____
HIPPLE	____	____	____	____
LARSON	____	____	____	____
SADLER	____	____	____	____
MCGLENNON	____	____	____	____

Adopted by the Board of Supervisors of James City County, Virginia, this 8th day of February, 2022.

RZ21-15_6940-50RichRdPrAmd-ord

JCC Z-21-0015
6940 and 6950 Richmond Road Proffer Amendment



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Tax Parcel: 2410100005B and 2410100005C
Prepared by:
Vernon M. Geddy, III, Esquire (VSB#21902)
Geddy, Harris, Franck & Hickman, LLP
1177 Jamestown Road
Williamsburg, VA 23185

Return to:
County Attorney
101-D Mounts Bay Road
Williamsburg, Virginia 23185

FIRST AMENDMENT TO PROFFER AGREEMENT

This FIRST AMENDMENT TO PROFFER AGREEMENT is made this 9th day of December, 2021 by **BUCKETS CAR WASH INC.**, a Virginia corporation ("Buckets"), and **HARBIN PROPERTIES LLC**, a Virginia limited liability company ("Harbin"), each to be indexed as Grantor, and **JAMES CITY COUNTY, VIRGINIA**, to be indexed as Grantee.

RECITALS

A. Buckets is the owner of James City Tax Parcel # 2410100005B located at 6950 Richmond Road, James City County, Virginia, being more particularly described on Exhibit A attached hereto ("Parcel 2410100005B").

B. Harbin is the owner of James City Tax Parcel # 2410100005C located at 6940 Richmond Road, James City County, Virginia, being more particularly described on Exhibit B attached hereto ("Parcel 2410100005C"). Parcel 2410100005B and Parcel 2410100005C are herein sometimes referred to as the "Property."

B. The Property is now subject to proffered zoning conditions set forth in Proffers dated August 31, 2006 made by Hill Pleasant Farm, Inc. and Doug Harbin and recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City as Instrument No. 060023805 (the "Existing Proffers").

D. The parties desire to amend Section 5 (d) of the Existing Proffers.

NOW, THEREFORE, the Existing Proffers are hereby amended as follows:

1. Section 5 (d) of the Existing Proffers is hereby amended in its entirety to read as follows:

> "(d) Prior to final approval of a site plan for development on Parcel 2410100005C, a traffic signal warrant study for the Route 60 cross-over entrance to the Property shall be conducted to determine if the development proposed will generate sufficient traffic to warrant a traffic signal at the entrance. The signal warrant study shall be submitted to the County and VDOT for their review and approval. If the approved study determines such a signal is warranted, the owner

of Parcel 2410100005C shall install the signal prior to the issuance of any certificate of occupancy for development on Parcel 2410100005C or in accordance with a schedule as may be determined by VDOT and approved by the Director of Planning."

2. Except as specifically modified by this First Amendment, the Existing Proffers remain in full force and effect.

WITNESS the following signatures:

BUCKETS CAR WASH INC.

By: _____
Title: Director

STATE OF Virginia
COUNTY/CITY OF James City, to-wit:

The foregoing instrument was acknowledged before me in my aforesaid jurisdiction this 9th day of December, 2021, by Patrick McLaughlin, as Director of Buckets Car Wash Inc., on behalf of the corporation.

_____ (SEAL)
NOTARY PUBLIC

My Commission expires: 06/30/2023
Notary ID # 7655079

AMY PRITCHARD COHEN
NOTARY PUBLIC
REG. #7655079
MY COMMISSION EXPIRES
JUN 30, 2023
COMMONWEALTH OF VIRGINIA

HARBIN PROPERTIES LLC

By: Wayne Harbin Jr.
Title: Member

STATE OF Virginia
COUNTY/CITY OF James City, to-wit:

The foregoing instrument was acknowledged before me in my aforesaid jurisdiction this 9th day of December, 2021, by Wayne D. Harbin Jr., as Vice President of Harbin Properties LLC, on behalf of the company.

Amy Pritchard Cohen (SEAL)
NOTARY PUBLIC

My Commission expires: 06/30/2023
Notary ID # 7655079

AMY PRITCHARD COHEN
NOTARY PUBLIC
REG. #7655079
MY COMMISSION EXPIRES
JUN 30, 2023
COMMONWEALTH OF VIRGINIA

Exhibit A

Description of Parcel 2410100005B

All that certain lot, piece or parcel of land lying, being and situate in James City county, Virginia containing 3.440 acres, more or less, designated as "New Parcel "1" on that certain plat entitled, "PLAT OF SUBDIVISION PLEASANT HILL STATION" OWNED BY HARBIN PROPERTIES, L.L.C. STONEHOUSE DISTRICT JAMES CITY COUNTY, VIRGINIA," dated July 24, 2008 made by AES Consulting Engineers, which plat is recorded in the Clerk's office of the Circuit Court for the City of Williamsburg and County of James City, Virginia as Instrument Number 080026000, reference to which plat is here made for a more particular description of the property.

Exhibit B

Description of Parcel 2410100005C

All that certain lot, piece or parcel of land lying, being and situate in James City county, Virginia containing 1.885 acres, more or less, designated as "New Parcel "2" on that certain plat entitled, "PLAT OF SUBDIVISION PLEASANT HILL STATION" OWNED BY HARBIN PROPERTIES, L.L.C. STONEHOUSE DISTRICT JAMES CITY COUNTY, VIRGINIA," dated July 24, 2008 made by AES Consulting Engineers, which plat is recorded in the Clerk's office of the Circuit Court for the City of Williamsburg and County of James City, Virginia as Instrument Number 080026000, reference to which plat is here made for a more particular description of the property.

PROFFERS

THESE PROFFERS are made this 3lst day of August, 2006 by HILL PLEASANT FARM, INC., a Virginia corporation (together with its successors and assigns, the "Owner") and DOUG HARBIN ("Buyer").

RECITALS

A. Owner is the owner of a tract or parcel of land located in James City County, Virginia, with an address of 7152 Richmond Road, Williamsburg, Virginia and being Tax Parcel 2410100005. Buyer has contracted to purchase, conditioned upon rezoning, a portion of the parcel containing 4.7± acres, being more particularly described on Exhibit A attached hereto (the "Property"). The Property is now zoned A-1.

B. Owner and Buyer have applied to rezone the Property from A-1 to B-1, General Business District, with proffers.

C. Buyer has submitted to the County a master plan entitled "Rezoning and Special Use Permit for Doug Harbin" prepared by AES Consulting Engineers dated May 26, 2006, revised July 21, 2006 (the "Master Plan") for the Property in accordance with the County Zoning Ordinance.

E. Owner and Buyer desire to offer to the County certain conditions on the development of the Property not generally applicable to land zoned B-1.

NOW, THEREFORE, for and in consideration of the approval of the requested rezoning, and pursuant to Section 15.2-2298 of the Code of Virginia, 1950, as amended, and the County Zoning Ordinance, Owner agrees that it shall meet and comply with all of the following conditions in developing the Property. If the requested rezoning is not granted by the County, these Proffers shall be null and void.

CONDITION

1. **Master Plan.** The Property shall be developed generally as shown on the Master Plan, with only minor changes thereto that the Development Review Committee determines do not change the basic concept or character of the development.

2. **Water Conservation.** The Owner shall be responsible for developing water conservation standards to be submitted to and approved by the James City Service Authority and subsequently for enforcing these standards. The standards shall address such water conservation measures as limitations on the installation and use of irrigation systems and irrigation wells, equipping the automatic car wash with an approved water recycling system, the use of approved landscaping materials and the use of water conserving fixtures and appliances to promote water conservation and minimize the use of public water resources. Irrigation wells shall only draw water from the Upper Potomac or Aquia Aquifers and shall be subject to the approval of the General Manager of James City Service Authority. The standards shall be approved by the James City Service Authority prior to final site plan approval.

3. **Architectural Review.** (a) Owner has submitted to the County a conceptual architectural perspective of the car wash to be located on the Property dated June 27, 2006 (the "Perspective") together with Architectural Guidelines for the entire Property (the "Guidelines") prepared by PMA Planners + Architects. The architecture and colors of the car wash shall be generally consistent with the Perspective as determined by the Director of Planning. All buildings on the Property, including the car wash, shall be of a harmonious and uniform architectural design and color scheme consistent with the car wash and shall be consistent with the Guidelines. No building on the property shall exceed thirty-five (35) in height.

(b) Prior to the County being obligated to issue a building permit for each building on the Property, Owner shall submit to the Director of Planning conceptual architectural plans,

including architectural elevations, for the building and any associated structures for the Director of Planning to review and approve for consistency with the Guidelines and this Proffer. Decisions of the Director of Planning may be appealed to the Development Review Committee, whose decision shall be final. Completed buildings shall be consistent with the approved plans.

4. **Owners Association.** There shall be organized an owner's association (the "Association") in accordance with Virginia law in which all property owners in the development, by virtue of their property ownership, shall be members. The articles of incorporation, bylaws and restrictive covenants (together, the "Governing Documents") creating and governing each Association shall be submitted to and reviewed by the County Attorney for consistency with this Proffer. The Governing Documents shall require that the Association adopt an annual maintenance budget, which shall include a reserve for maintenance of stormwater management BMPs, open space areas, private streets, sidewalks, sewer and water systems and all other common areas under the jurisdiction of the Association, and shall require that the Association (i) assess all members for the maintenance of all properties owned or maintained by the Association and (ii) file liens on members' properties for non-payment of such assessments. The Governing Documents shall grant each Association the power to file liens on members' properties for the cost of remedying violations of, or otherwise enforcing, the Governing Documents. The Association shall be responsible for the maintenance of (i) the private sewer system serving the Property pursuant to a Perpetual Maintenance Agreement to be entered into with James City Service Authority and (ii) any private water lines.

5. **Entrances/Turn Lanes.** (a) The main entrance to the Property shall be from Route 60 in the approximate location shown on the Master Plan. A right turn lane with 150 feet of storage shall be constructed at the main entrance.

(b) Owner shall install a second right in only entrance to the Property from Route 60 in

the approximate location shown on the Master Plan. If and when this second entrance is installed, a right turn lane with 150 feet of storage and a 150 foot taper from Route 60 into the second entrance shall be constructed.

(c) The turn lanes proffered hereby shown on the Master Plan shall be constructed in accordance with Virginia Department of Transportation ("VDOT") standards, shall be approved by VDOT and the Planning Director, shall include shoulder bike lanes and shall be completed or their completion bonded in form satisfactory to the County Attorney prior to the issuance of any building permit for buildings on the Property.

(d) Prior to the issuance of the first building permit for construction on the Property, Owner shall post a bond or other surety in form acceptable to the County Attorney for the installation of a traffic signal at the main entrance when and if VDOT traffic signal warrants are met. Owner shall conduct a traffic signal warrant study (i) within six months of the buildout of the Property or (ii) at such earlier time upon the request of VDOT and submit the study to the County and VDOT for their review and approval. If the approved study determines such a signal is warranted, the Owner shall install the signal. If the approved study determines such a signal is not warranted, Owner shall have no further obligation with respect to the signal and its bond or surety shall be released by the County.

(e) If any use is proposed to locate on the Property with a materially higher trip generation based on ITE trip generation figures than the use used in the Traffic Study which results in an overall materially higher trip generation from the Property as determined by the Director of Planning, then Owner shall submit with the proposed site plan for the new use an updated traffic impact study to the Director of Planning and VDOT based on the new proposed use for their review and approval and shall implement the recommendations of the approved updated study prior to issuance of certificate of occupancy for the new use.

6. **Lighting.** All light poles on the Property shall not exceed 20 feet in height. All external lights on the Property shall be recessed fixtures with no globe, bulb or lens extending below the casing or otherwise unshielded by the case so that the light source is visible from the side of the fixture. No glare defined as 0.1 footcandle or higher shall extend outside the property lines of the Property unless otherwise approved by the Director of Planning. Owner shall submit a lighting plan to the Director of Planning for review and approval for consistency with this Proffer prior to final site plan approval.

7. **Route 60 Buffer.** There shall be a 50 foot community character corridor buffer along the Route 60 frontage of the Property. The portion of the buffer located adjacent to buildings, parking and the BMP shown on the Master Plan shall contain enhanced (defined as 125% of Ordinance size requirements) landscaping and variable height berms from two to four feet in height generally as shown on the Master Plan. The western most portion of the buffer area and the adjacent open space shall have installed the fruit tree orchard and naturalized meadow generally as shown on the Master Plan. A landscape plan for the entire buffer shall be submitted to the Director of Planning with the initial site plan for development on the Property for his review and approval for consistency with this proffer. The buffer shall be planted or the planting bonded prior to the County being obligated to issue certificates of occupancy for buildings located on the Property.

8. **Environmental.** Owner shall submit to the County a master stormwater management plan as a part of the site plan submittal for the Property, including stormwater management/best management practices, in accordance with James City County Stormwater Guidelines and in locations as generally shown on the Master Plan and low impact design measures to satisfy the Special Stormwater Criteria, located generally as shown on the Master Plan including, without limitation, use of flatter site grades, bioretention, flat bottom, wide swales, underground pipe storm drain pipe or drywell or rain barrels for major downspouts, in

accordance with the Yarmouth Creek Watershed Management Plan, for review and approval by the Environmental Division. The master stormwater management plan may be revised and/or updated during the development of the Property with the prior written approval of the Environmental Director. The County shall not be obligated to approve any final development plans for development on the Property until the master stormwater management plan has been approved. The approved master stormwater management plan, as revised and/or updated, shall be implemented in all development plans for the Property. Owner shall be responsible for keeping the culverts under Route 60 draining the Property free of debris that would block or impede drainage from the Property.

9. **Excluded Uses.** The following uses generally permitted in the B-1 district shall not be permitted on the Property:

Adult Day Care Centers
Bowling Alley
Child Care Centers
Dance Hall
Fast Food Restaurants
Funeral Homes
Hotels, Motels, and Convention Centers
Houses of Worship
Indoor Theatres
Public Meeting Hall
Radio and Television Stations
Schools
Wireless Communication Facilities

10. **Reserved Right of Way.** Owner shall reserve the area shown on the Master Plan as "Possible Future Connection to Adjacent Parcel" for a possible future road connection to the adjacent Go Karts Plus parcel to the east of the Property.

5248 Olde Towne Road • Suite 1
Williamsburg, VA 23188
(757) 253-0040
Fax: (757) 220-8994

CONSULTING ENGINEERS

614 Moorefield Park
Richmond, VA 23236
(804) 330-8040
Fax: (804) 330-9840

September 5, 2006

Property Description
for a Portion of the Property
Owned By Hill Pleasant Farm, Inc.

Portion of Tax Map Parcel #(24-1)(1-15)
Containing Approximately 5.0 Acres+/-

All that certain piece, parcel or tract of land, situate, lying and being in the Stonehouse District of the County of James City, Virginia; said piece, parcel or tract of land is triangular in shape containing approximately 5.0 acres more or less and being more particularly described as follows:

Beginning at a point on the easterly right-of way line of U. S. Route #60, Richmond Road; said point of beginning being approximately 635 feet in a northerly direction from the intersection of Colonial Heritage Boulevard and U.S. Route #60, Richmond Road; said point being a corner to the property described hereon and the property now or formerly owned by Action Park of Williamsburg, VA., Inc.; thence in a northerly direction and along the easterly right-of-way line of U.S. Route #60, Richmond Road, a distance of 2047 feet more or less to a point, said point being a corner to the property described hereon and the intersection of the easterly right-of-way line of U.S. Route #60, Richmond Road and the westerly right-of-line of the CSX Railroad (formerly C & 0 Railroad); thence in a southerly direction and along the westerly right-of-way line of the CSX Railroad (formerly C & 0 Railroad), a distance of 2062 feet more or less to a point; said point being a corner to the property described hereon and the property now or formerly owned by Action Park of Williamsburg, VA., Inc.; thence in a westerly direction, a distance of 294 feet more or less and along the line of the property described hereon and the property now or formerly owned by Action Park of Williamsburg, VA., Inc. to the aforesaid point of beginning.

This being a portion of the same property conveyed to Hill Pleasant Farm, Inc. by deed from Harold J. Hunt, Jr. and Muriel R. Hunt, dated December 31, 1974 and duly recorded at the Clerk's Office of the Circuit Court of the County of James City, Virginia in Deed Book 158, page 176.

aes@aesva.com • www.aesva.com

RESOLUTION

CASE NO. SUP-21-06. PLEASANT HILL STATION

WHEREAS, The Board of Supervisors of James City County has adopted by ordinance specific land uses that shall be subjected to a Special Use Permit (SUP) process; and

WHEREAS, Mr. James Peters has applied for an SUP to allow for the development of a car wash, as well as a traffic generation rate which is over 100 peak hour trips; and

WHEREAS, the property is located on land zoned B-1, General Business, and can be further identified as Parcel No. (1-5) on James City County Real Estate Tax Map No. (24-1); and

WHEREAS, the Planning Commission, following its Public Hearing on August 7, 2006, voted 6 to 0 to recommend approval of this application.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, does hereby approve the issuance of Special Use Permit No. 21-06 as described herein with the following conditions:

1. If construction has not commenced on this project within 36 months from the issuance of an SUP, the SUP shall become void. Construction shall be defined as clearing, grading, and excavation of trenches necessary for the water and sewer mains.

2. This SUP is not severable. Invalidation of any word, phrase, clause, sentence, or paragraph shall invalidate the remainder.

Bruce C. Goodson
Chairman, Board of Supervisors

SUPERVISOR	VOTE
HARRISON	AYE
ICENHOUR	AYE
MCGLENNON	AYE
BRADSHAW	AYE
GOODSON	AYE

ATTEST:

Sanford B. Wanner
Clerk to the Board

Adopted by the Board of Supervisors of James City County, Virginia, this 12th day of September, 2006.

Sup-21-06.res

These documents were printed from the Official JCC Records Management Imaging Site

2-3-06 / SUP-21-06 / MP-4-06

SEP 2006 RECEIVED PLANNING DEPARTMENT

REZONING AND SPECIAL USE PERMIT

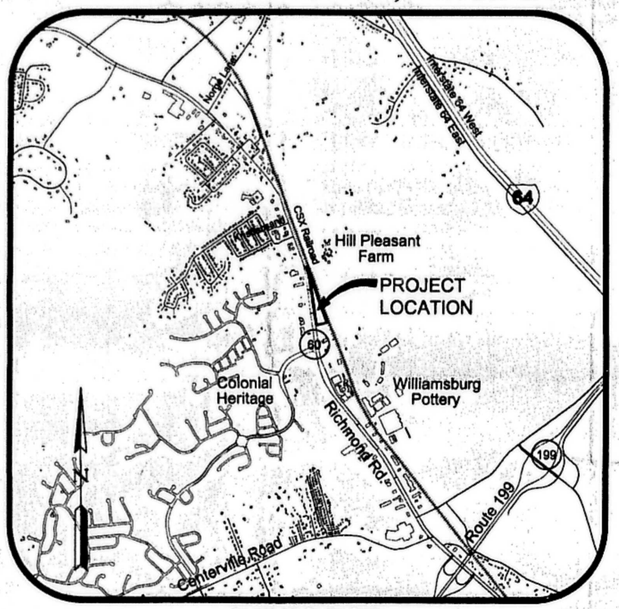
FOR

PLEASANT HILL STATION

FOR

Doug Harbin

STONEHOUSE DISTRICT
JAMES CITY COUNTY, VIRGINIA



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VICINITY MAP (APPROX.. SCALE 1"=2000')
MAY 26, 2006
REVISED: JULY 21, 2006
JAMES CITY COUNTY ID NUMBER: Z-3-06
AES PROJECT NO.: 9668-00
SHEET 1 OF 4

COMMONWEALTH OF VIRGINIA
JAMES S. PETERS
No. 000393
7-21-06
CERTIFIED LANDSCAPE ARCHITECT

INDEX OF SHEETS

SHEET NUMBER	DESCRIPTION
1	COVER SHEET
2	EXISTING CONDITIONS PLAN
3	MASTER PLAN
4	NON BINDING ILLUSTRATIVE PLAN

AES
CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND • GLOUCESTER
5248 Olde Towne Road, Suite 1 • Williamsburg, Virginia 23188
(757) 253-0040 • Fax (757) 220-8994

CONTACT INFORMATION:
DOUG HARBIN
3705 STRAWBERRY PLAINS ROAD, SUITE D
WILLIAMSBURG, VA 23188
(757) 220-8860
DOUG@HARBINBUILDER.COM

PARCEL ADDRESS: 7152 RICHMOND ROAD
PARCEL ID NUMBER: 2410100005

1/4

APPROVAL DATE	No.	DATE	REVISION / COMMENT / NOTE	REVISED BY	REVIEWED BY
	01	7/21/06	PER JAMES CITY COUNTY STAFF COMMENTS	GRR	JSP

PLEASANT HILL STATION JOB # 9668-00

(24-1) (01-5) Z-3-06, SUP-21-06, MP-4-06
Pleasant Hill Station

These documents were printed from the Official JCC Records Management Imaging Site

SOIL TYPE LEGEND

10B-Craven fine sandy loam complex, 2 to 6% slopes. Soil is deep, gently sloping and moderately well drained. Located on broad upland flats and narrow broad ridges and side slopes. Water capacity is low due to slow permeability. The erosion potential is moderate.

14B-Emporia fine sandy loam, 2 to 6% slopes. Deep, gently sloping, and well drained. Located on medium and broad upland ridges. Moderate water capacity, medium surface runoff, and moderate erosion potential.

29A-Slagle fine sandy loam, 0 to 2% slopes. Soil is deep, nearly level, and moderately well drained. Located on upland terraces and broad flat uplands. Moderate permeability in the upper layers of soil, but moderately slow or slow in the lower part. The erosion is hazard is slight.

34B-Uchee loamy fine sand, 2 to 6% slopes. Deep, gently sloping, and well drained. Located on upland ridges and side slopes. Low to moderate water capacity with slight erosion potential.

Soil information taken from "Soil Survey of James City and York Counties and the City of Williamsburg, Virginia" issued April 1985 by the United States Department of Agriculture Soil Conservation Service.

LEGEND

- SUBJECT PROPERTY BOUNDARY
- SOIL TYPE BOUNDARY
- EXISTING ZONING LINE
- EXISTING PSA LINE

ENVIRONMENTAL INVENTORY

TIDAL SHORES:	NOT IMPACTED
TIDAL WETLANDS:	NOT IMPACTED
NON-TIDAL WETLANDS:	NOT IMPACTED
100' RPA BUFFER:	NOT IMPACTED
25% SLOPES:	NOT IMPACTED
100-YR FLOOD PLAIN:	NOT IMPACTED
ASSOCIATED WATERSHED:	YARMOUTH CREEK SUBWATERSHED 104

NOTE: THE SUBJECT PROPERTY IS CURRENTLY A PART OF THE HILL PLEASANT FARM AGRICULTURAL AND FORESTAL DISTRICT (AFD). PRIOR TO BOARD OF SUPERVISORS APPROVAL THIS PROPERTY SHALL BE REVIEWED FOR REMOVAL FROM THE AFD.

GRAPHIC SCALE
50' 0' 50' 100'
SCALE: 1" = 50'

29A
10B
10B
29A
34B
14B
29A
34B
11C
20B

NOW OR FORMERLY WILLIAMSBURG POTTERY FACTORY INC (24-3)(1-16) 5.7 AC ZONED A-1

ZONING LINE (A-1)
ZONING LINE (B-1)
PSA BOUNDARY
CSX RAILROAD
24" F.M.

NOW OR FORMERLY ACTION PARK OF WILLIAMSBURG (24-3)(1-15) 4.3 AC ZONED B-1

EXISTING GRAVEL/DIRT ROAD

7157 RICHMOND ROAD
NOW OR FORMERLY
HILL PLEASANT FARM, INC
(24-1)(1-5)
403.0 AC (4.7± AC SUBJECT TO REZONING)
ZONED A-1

20' SEWER EASEMENT

EX. 10"FM
WESTBOUND TO TOANO
RICHMOND ROAD (ROUTE 60)
VARIABLE WIDTH RIGHT-OF-WAY
EASTBOUND TO WILLIAMSBURG
EX. 16" W

NOW OR FORMERLY DODSON, JOHN E (24-1)(1-8) 8.4 AC ZONED B-1

NOW OR FORMERLY C & J LLC (24-1)(1-10) 1.4 AC ZONED B-1

NOW OR FORMERLY CHINIKA, INC (24-1)(1-11A) 1.9 AC ZONED B-1

NOW OR FORMERLY WARE, DAVID W MARITAL (24-1)(1-11) 2.0 AC ZONED B-1

NOW OR FORMERLY BAYLANDS FEDERAL CREDIT UNION (24-1)(1-12) 3.3 AC ZONED B-1

NOW OR FORMERLY WARE, DAVID W MARITAL (24-3)(1-3) 25.0 AC ZONED M-1

2/4

No.	DATE	REVISION / COMMENT / NOTE	REVISED BY	REVIEWED BY
01	7/21/06	PER JAMES CITY COUNTY STAFF COMMENTS	GRR	JSP

AES CONSULTING ENGINEERS
WILLIAMSBURG • RICHMOND • GLOUCESTER

5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

EXISTING CONDITIONS PLAN

PLEASANT HILL STATION

for

DOUG HARBIN

STONEHOUSE DISTRICT — JAMES CITY COUNTY — VIRGINIA

Designed JSP/GRR	Drawn NAJ/GRR
Scale 1"=50'	Date 5/26/06
Project No. 9668-00	
Drawing No. 2	

These documents were printed from the Official JCC Records Management Imaging Site

DEVELOPMENT NOTES

PROPERTY ADDRESS : 7152 RICHMOND ROAD
PROPERTY OWNER : HILL PLEASANT FARM, INC.
DEVELOPER : DOUG HARBIN

PROPERTY INFORMATION:
TOTAL ACREAGE : 4.7± AC
EXISTING ZONING : A-1
PROPOSED ZONING : B-1

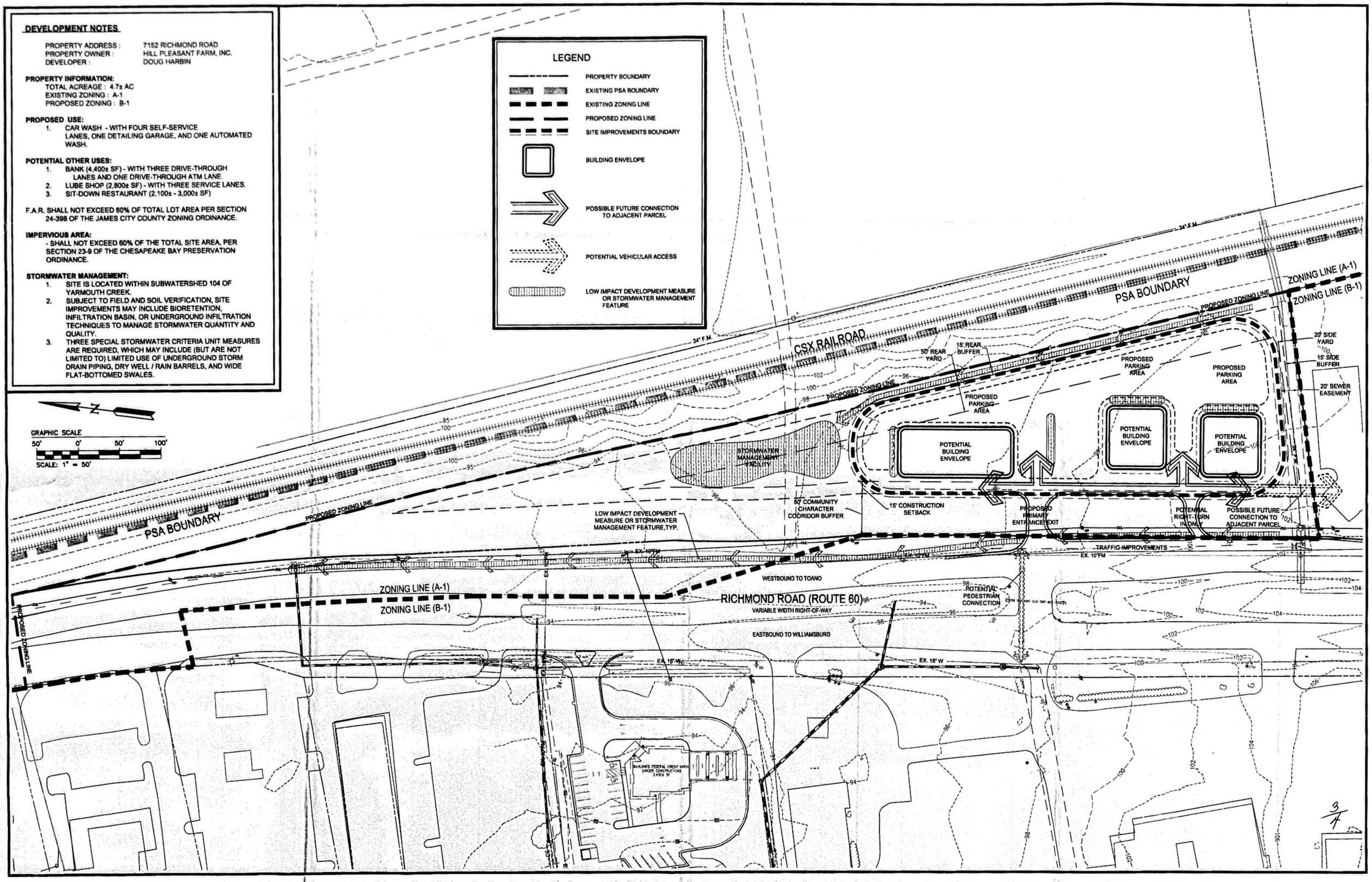
PROPOSED USE:
1. CAR WASH - WITH FOUR SELF-SERVICE LANES, ONE DETAILING GARAGE, AND ONE AUTOMATED WASH.

POTENTIAL OTHER USES:
1. BANK (4,400± SF) - WITH THREE DRIVE-THROUGH LANES AND ONE DRIVE-THROUGH ATM LANE.
2. LUBE SHOP (2,800± SF) - WITH THREE SERVICE LANES.
3. SIT-DOWN RESTAURANT (2,100± - 3,000± SF)

F.A.R. SHALL NOT EXCEED 60% OF TOTAL LOT AREA PER SECTION 24-398 OF THE JAMES CITY COUNTY ZONING ORDINANCE.

IMPERVIOUS AREA:
- SHALL NOT EXCEED 60% OF THE TOTAL SITE AREA, PER SECTION 23-9 OF THE CHESAPEAKE BAY PRESERVATION ORDINANCE.

STORMWATER MANAGEMENT:
1. SITE IS LOCATED WITHIN SUBWATERSHED 104 OF YARMOUTH CREEK.
2. SUBJECT TO FIELD AND SOIL VERIFICATION, SITE IMPROVEMENTS MAY INCLUDE BIORETENTION, INFILTRATION BASIN, OR UNDERGROUND INFILTRATION TECHNIQUES TO MANAGE STORMWATER QUANTITY AND QUALITY.
3. THREE SPECIAL STORMWATER CRITERIA UNIT MEASURES ARE REQUIRED, WHICH MAY INCLUDE (BUT ARE NOT LIMITED TO) LIMITED USE OF UNDERGROUND STORM DRAIN PIPING, DRY WELL / RAIN BARRELS, AND WIDE FLAT-BOTTOMED SWALES.



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01	7/21/06	PER JAMES CITY COUNTY STAFF COMMENTS	GRR	JSP

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Fax (757) 220-8994

MASTER PLAN
PLEASANT HILL STATION
for
DOUG HARBIN
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Designed	Drawn
JSP/GRR	GRR
Scale	Date
1"=50'	5/26/06
Project No.	
9668-00	
Drawing No.	
3	

These documents were printed from the Official JCC Records Management Imaging Site

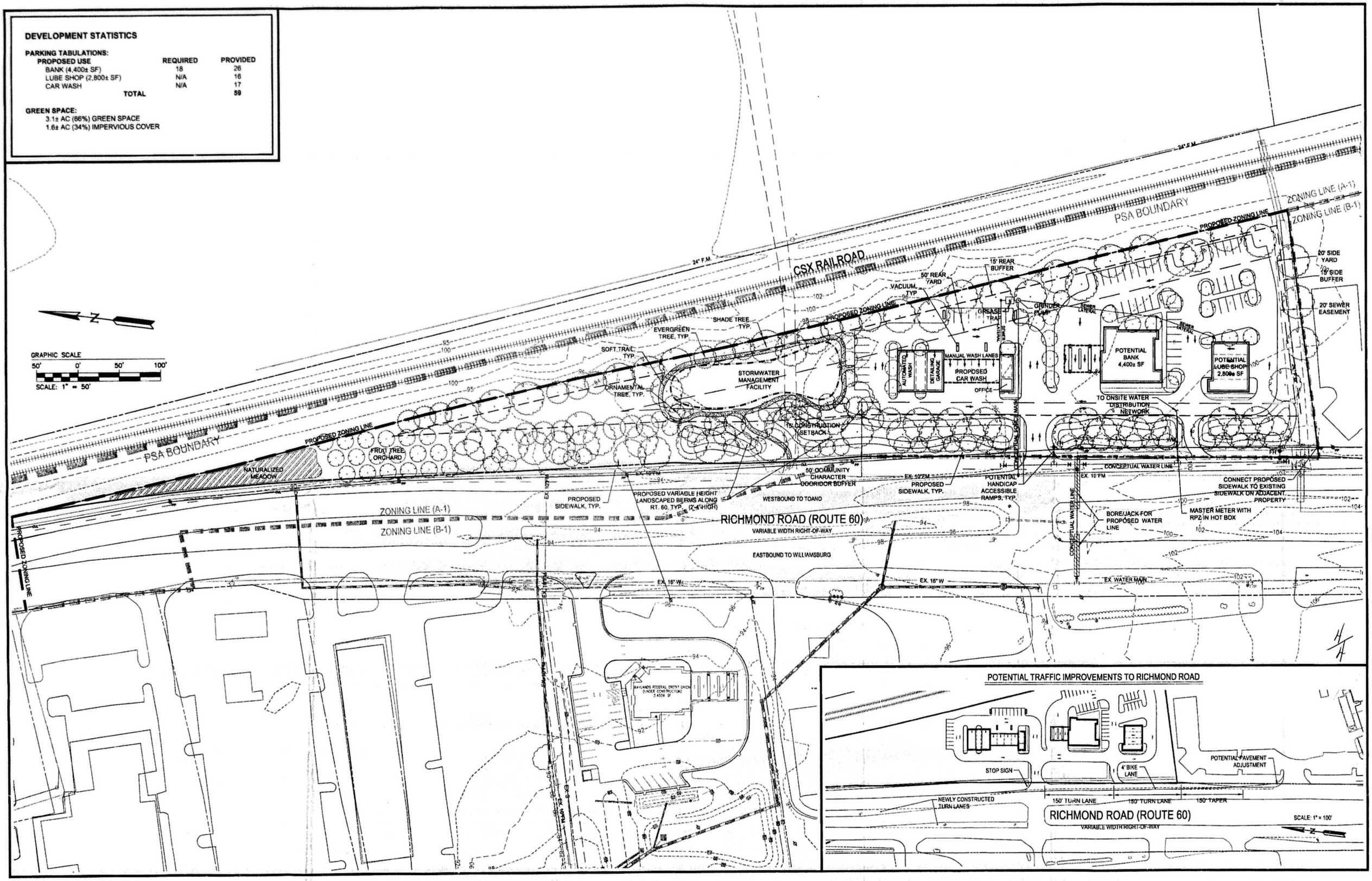
DEVELOPMENT STATISTICS

PARKING TABULATIONS:

PROPOSED USE	REQUIRED	PROVIDED
BANK (4,400± SF)	18	26
LUBE SHOP (2,800± SF)	N/A	16
CAR WASH	N/A	17
TOTAL		59

GREEN SPACE:

3.1± AC (66%) GREEN SPACE
1.6± AC (34%) IMPERVIOUS COVER



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NON-BINDING ILLUSTRATIVE PLAN

PLEASANT HILL STATION

for

DOUG HARBIN

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Designed	Drawn
JSP/GRR	GRR
Scale	Date
1"=50'	5/26/06
Project No.	
9668-00	
Drawing No.	
4	

These documents were printed from the Official JCC Records Management Imaging Site

Unapproved Minutes of the January 5, 2022
Planning Commission Regular Meeting

Z-21-0015. 6940 and 6950 Richmond Road Proffer Amendment

A motion to Approve was made by Frank Polster, the motion was Passed.
AYES: 6 NAYS: 0 ABSTAIN: 0 ABSENT: 0
Ayes: Null, Rose, Polster, Leverenz, Krapf, O'Connor

Mr. Tom Leininger, Senior Planner, stated that Mr. Doug Harbin has applied to amend the existing Proffers for two parcels located at 6940 and 6950 Richmond Road. Mr. Leininger stated that the Proffer Amendment would revise the timing of the required signal warrant study. Mr. Leininger stated that the properties are zoned B-1, General Business with Proffers, located within the PSA and are designated Mixed Use on the adopted 2045 Comprehensive Plan Land Use Map.

Mr. Leininger stated that the current proffers were adopted on August 31, 2006 and required the traffic signal to be bonded prior to the first building permit for the properties. Mr. Leininger stated that currently, the signal warrant study would be required within six months of the buildout of both properties or earlier upon the request of the Virginia Department of Transportation (VDOT).

Mr. Leininger stated that Harbin Properties, LLC has maintained a letter of credit in accordance with the 2006 Proffer since the Colonial Car Wash at 6950 Richmond Road was built in 2009. Mr. Leininger stated that the second property remains vacant.

Mr. Leininger stated that the proposed amendment would eliminate the need to renew the surety each year; however, a traffic signal warrant study would be required prior to final site plan approval for 6940 Richmond Road. Mr. Leininger stated that if the signal is warranted, installation of the traffic signal would be required prior to any occupancy permit for the site.

Mr. Leininger stated that staff finds this proffer amendment to be compatible with surrounding development and consistent with the 2045 Comprehensive Plan and Zoning Ordinance. Mr. Leininger further stated that staff recommends that the Planning Commission recommend approval of the proffer amendment to the Board of Supervisors.

Ms. Null asked if there was a use proposed.

Mr. Leininger stated there is no current use proposed at the time.

Mr. Vernon Geddy spoke in favor of the application.

As there were no speaker cards Mr. O'Connor closed the Public Hearing and opened the floor for discussion by the Commission.

Mr. Polster made a motion to recommend approval of the application.

On a roll call vote, the Commission voted to recommend approval of Z-21-0015. 6940 and 6950 Richmond Road Proffer Amendment (6-0)

AGENDA ITEM NO. G.2.

ITEM SUMMARY

DATE: 2/8/2022

TO: The Board of Supervisors

FROM: Tom Leininger, Principal Planner

SUBJECT: SUP-21-0017. 4007 Ironbound Road Convenience Store with Fuel

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ATTACHMENTS:

	Description	Type
	Staff Report	Staff Report
	Resolution	Resolution
	Location Map	Backup Material
	Master Plan	Backup Material
	Community Impact Statement	Backup Material
	Traffic Impact Analysis	Backup Material
	Illustrative Plan Drawing	Backup Material
	Building Elevations	Backup Material
	Gas Canopy Elevations	Backup Material
	Ironbound Crossing Design Guidelines	Backup Material
	Z-18-0006 Adopted Proffers	Backup Material
	Traffic Impacts and Roadway Improvements Maps	Backup Material
	Correspondence from Adjacent Property Owners	Backup Material
	Unapproved Minutes of the January 5, 2022, Planning Commission Meeting	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Planning	Holt, Paul	Approved	1/21/2022 - 3:55 PM
Development Management	Holt, Paul	Approved	1/21/2022 - 3:55 PM
Publication Management	Pobiak, Amanda	Approved	1/21/2022 - 4:35 PM
Legal Review	Kinsman, Adam	Approved	1/24/2022 - 9:37 AM
Board Secretary	Saeed, Teresa	Approved	1/24/2022 - 10:01 AM
Board Secretary	Purse, Jason	Approved	2/1/2022 - 2:30 PM
Board Secretary	Saeed, Teresa	Approved	2/1/2022 - 2:50 PM

SUMMARY FACTS

Applicant:	Mr. Mark Rinaldi
Land Owner:	G-Square, Inc.
Proposal:	To construct a +/- 6,049-square-foot convenience store with six fueling islands
Location:	4007 Ironbound Road
Tax Map/Parcel No.:	3840100002A
Property Acreage:	± 1.93 acres
Zoning:	B-1, General Residential with proffers
Comprehensive Plan:	Mixed Use
Primary Service Area: (PSA)	Inside
Staff Contact:	Tom Leininger, Principal Planner

PUBLIC HEARING DATES

Planning Commission:	January 5, 2022, 6:00 p.m.
Board of Supervisors:	February 8, 2022, 5:00 p.m.

FACTORS FAVORABLE

1. Staff finds the proposal consistent with the 2045 Comprehensive Plan.
2. Staff finds the proposed conditions will mitigate impacts to surrounding properties and development.
3. The three impacted intersections will continue to operate at a Level of Service (LOS) C or better.
4. Impacts: See Impact Analysis on Pages 7-8.

FACTORS UNFAVORABLE

1. Certain turning movements will decrease to a LOS E with the proposed development over the No-Build scenario.
2. Impacts: See Impact Analysis on Pages 7-8.

SUMMARY STAFF RECOMMENDATION

Staff recommends the Board of Supervisors approve of the proposed Special Use Permit (SUP) subject to the proposed conditions.

PLANNING COMMISSION RECOMMENDATION

At its January 5, 2022, Regular meeting, the Planning Commission voted 6-0 to recommend approval of the SUP request to the Board of Supervisors subject to the proposed conditions.

PROPOSED CHANGES MADE SINCE THE PLANNING COMMISSION MEETING

None.

PROJECT DESCRIPTION

Mr. Mark Rinaldi has applied for an SUP to construct a 6,049-square-foot convenience store with six fueling islands. An SUP is required for the convenience store with gas pumps in the B-1 Zoning District.

Additionally, per Section 24-11 of the Zoning Ordinance, a commercial SUP is required for any convenience store and for any commercial building or group of buildings, not including office uses, which generates, or would be expected to generate, a total of 100 or more additional trips to and from the site during the peak hour of the operation. Currently, the site is vacant with an abandoned Virginia Department of Transportation (VDOT) cul-de-sac.

PLANNING AND ZONING HISTORY

The property at 4007 Ironbound Road was previously rezoned in 2002 from R-8, Rural Residential and M-1, Limited Business/Industrial to B-1, General Business with proffers (Z-0005-2000). The master plan allowed for the construction of a five-story office building (parking was underneath the building as one of the stories).

In 2018, the property, along with a portion of 4002 Ironbound Road and the remaining Ironbound Road cul-de-sac were rezoned to B-1, General Business with proffers (Z-18-0006). The adopted proffers (Attachment No. 10) restrict certain uses permitted on this site. Some of these restricted uses include contractors' offices, hotels, vehicle sales and services, wholesale, and warehousing. This SUP would only be for the 1.93-acre parcel and would not apply to the entire area associated with Z-18-0006.

Since the rezoning, the property owner of 4007 Ironbound Road has worked with VDOT to acquire the land consisting of the Ironbound Road cul-de-sac. A boundary line adjustment was approved in 2020 to create the 1.93-acre parcel that currently exists.

Traffic

The applicant has submitted a Traffic Impact Analysis (TIA) for review by VDOT and the County's consultant, Kimley-Horn, to assess any impacts requiring mitigation. The TIA analyzed the various roadway segments and intersections surrounding the site including Monticello Avenue, Ironbound Road, and Old Ironbound Road. Attachment No. 5, Exhibit No. 2 shows the full extent of the area that is studied by this TIA. According to the applicant, the site is expected to have an average of 3,917 daily trips (Attachment No. 5, Exhibit No. 18) generated by the convenience store with gas. Additionally, Exhibit No. 18 anticipates 452 AM peak hour trips and 348 PM peak hour trips.

Per the 2045 Comprehensive Plan Future Roadway Congested Levels developed by Michael Baker International, this segment of Monticello Avenue (Route 199 to Ironbound Road) is currently operating at a LOS A-C with a future 2045 PM Peak Period LOS E-F. The 2017 weekday volume is 21,320 trips with an expected 41,257 weekday trips in 2045.

Ironbound Road from Monticello Avenue to Strawberry Plains Road is currently operating at a LOS A-C with a future 2045 PM Peak LOS A-C. Per the 2045 Comprehensive Plan Future Roadway Congested Levels, the 2017 weekday volume is 1,571 trips with an expected 2,314 weekday trips in 2045.

The tables on Pages 3 and 4 show the levels of service of the surrounding intersections based on various scenarios stated in the TIA. Furthermore, the TIA identifies the following improvements that are intended to mitigate the increased amount of traffic generated by this SUP:

- On northbound Ironbound Road, from Ironbound cul-de-sac/Courthouse Commons to Monticello Avenue, a second exclusive left-turn and a through/right-turn lane will be added with pavement transition south of the Ironbound cul-de-sac/Courthouse Commons intersection.
- A southbound right-turn lane on Ironbound Road at Ironbound cul-de-sac/Courthouse Commons, consisting of a 100-foot of full-width turn lane with a 100-foot taper.

- Restriping of Ironbound Road for pavement additions associated with the improvements listed above.

- Modifications to northbound traffic signal loop detectors and related equipment for signalized traffic control on northbound Ironbound Road at Monticello Avenue.

- Adjustments to curbs, sidewalks and other public road structures and equipment necessary to accommodate the lane additions cited above.

There are no proposed roadway improvements along Monticello Avenue.

Monticello Avenue and Route 199						
	Existing		2023 No-Build		2023 Build-out with Improvements	
	AM	PM	AM	PM	AM	PM
Overall	C	C	C	C	B	C
EBL2	D	E	D	E	E	E
EBT2	B	B	B	B	A	B
EBR	C	A	B	A	A	A
WBL2	D	E	D	E	E	E
WBT2	A	B	A	B	A	C
WBR	B	A	A	B	A	B
NBL2	E	D	E	D	D	D
NBR	A	A	A	A	A	A
SBL2	D	D	D	D	D	D
SBR	A	A	A	A	A	A

Eastbound (EB) Monticello Avenue traffic is coming from WindsorMeade Marketplace and traveling east towards New Town.

Westbound (WB) Monticello Avenue traffic is coming from New Town and traveling west towards WindsorMeade Marketplace.

Northbound (NB) traffic is coming from John Tyler Highway along Route 199 and have exited off with NBL2 traffic turning towards WindsorMeade Marketplace and NBR traffic turning towards New Town.

Southbound (SB) traffic is coming from Longhill Road along Route 199 and have exited off with SBL2 traffic turning towards New Town and SBR traffic turning towards WindsorMeade Marketplace.

Monticello Avenue, Casey Boulevard, and Ironbound Road							
	Existing		2023 No-Build		2023 Build-out with Improvements		
	AM	PM	AM	PM		AM	PM
Overall	B	C	B	C	Overall	C	C
EBL2	D	D	D	D	EBL2	D	D
EBT2	A	B	A	B	EBT2	B	C
EBR	B	A	B	B	EBR	C	C
WBL	A	B	A	B	WBL	A	C
WBT3R	A	C	A	B	WBT3R	A	B
NBL	E	E	E	E	NBL2	D	D
NBLT/R	E	D	E	E	NBT/R	D	D
SBL/T	E	E	E	E	SBL/T	D	E
SBR2	D	D	D	D	SBR2	D	D

Eastbound (EB) traffic is coming from Route 199 along Monticello Avenue and traveling east towards Settlers Market Boulevard.

Westbound (WB) traffic is coming from Settlers Market Boulevard along Monticello Avenue and traveling west towards Route 199.

Northbound (NB) Ironbound Road traffic is coming from Old Ironbound Road and traveling towards Casey Boulevard.

Southbound (SB) Casey Boulevard traffic is traveling towards Old Ironbound Road.

Ironbound Road, Courthouse Commons and Old Ironbound Road							
	Existing		2023 No-Build		2023 Build-out with Improvements		
	AM	PM	AM	PM		AM	PM
Overall					Overall		
EBL/T/R	B	C	B	C	EBL/T/R	C	C
WBL/T/R	A	B	A	B	WBL/T/R	A	B
NBL/T/R	A	A	A	A	NBL/T	A	A
SBL/T/R	A	A	A	A	NBT/R	A	A
					SBL/T	A	A
					SBR	A	A

Eastbound (EB) traffic is coming from the project site and traveling east towards Courthouse Commons on Old Ironbound Road.

Westbound (WB) traffic is coming from Courthouse Commons and traveling west towards the project site.

Northbound (NB) traffic along Ironbound Road is traveling north towards Casey Boulevard.

Southbound (SB) traffic is coming from Casey Boulevard and traveling towards the project site.

Per the Board of Supervisors adopted Traffic Impact Analysis Submittal Requirements Policy, "the TIA should identify the necessary improvements to achieve an overall LOS C on adjacent roadways/signalized intersections. The Planning Director may approve movements in certain lane groups of LOS D in urban environments."

Overall, all three intersections would operate at a LOS C or better with the improvements provided in the TIA.

All of the associated turning movements listed above are expected to operate at a LOS D or better at build-out with the following exceptions.

The following movements decreased in LOS from the 2023 No-Build scenario to the 2023 Build-out with Improvements scenario, but remain a LOS C or greater:

Monticello Avenue and Route 199

- Westbound Through (2): PM LOS B to LOS C

Monticello Avenue, Casey Boulevard, and Ironbound Road

- Overall: AM LOS B to LOS C
- Eastbound Through (2): PM LOS B to LOS C
- Eastbound Right: AM and PM LOS B to LOS C
- Westbound Left: PM LOS B to LOS C

Ironbound Road, Courthouse Commons, and Old Ironbound Road

- Eastbound Left/Through/Right: AM LOS B to LOS C

The following movements are expected to operate at a LOS E in the 2023 No-Build scenario and remain a LOS E in the 2023 Build-out with Improvements:

Monticello Avenue and Route 199

- Eastbound Left (2) PM
- Westbound Left (2) PM

Monticello Avenue, Casey Boulevard, and Ironbound Road

- Southbound Left/Through PM

The following movements decreased to a LOS E from the 2023 No-Build scenario to the 2023 Build-out with Improvements scenario:

Monticello Avenue and Route 199

- Eastbound Left (2): AM LOS D to LOS E
- Westbound Left (2): AM LOS D to LOS E

The applicant does not propose any improvements to these two-lane movements which decrease to a LOS E.

All rezoning and SUP applications are subject to the adequate transportation facilities test. A proposed rezoning or SUP application will be tested for adequate transportation facilities and will pass the test if:

- No off-site improvements are required by the TIA that is approved by both the Planning Director and VDOT; or
- All off-site improvements recommended by a TIA that are approved by both the Planning Director and VDOT are guaranteed in a form approved by the Planning Director and the County Attorney.

The proposed SUP application provides off-site improvements recommended by the TIA that is approved by both the Planning Director and VDOT. Prior to site plan approval, all recommended improvements listed above shall be guaranteed in a manner acceptable to the County Attorney (SUP Condition No. 12).

Building Setbacks and Landscape Buffers

During the 2018 rezoning (Z-18-0006), the applicant had requested reduced building setbacks and reduced landscape buffers along rights-of-way. Staff was generally supportive of the request and found the proposal could meet the criteria found in Section 24-98 due to the submission of Design Guidelines. The Board of Supervisors adopted the submitted Design Guidelines (Attachment No. 9) for the site.

Given the relatively small size of the site and the desire for development of this site to have enhanced architecture and other site elements that are generally consistent with the New Town form of development, the applicants are proposing the same decrease in the setbacks and the landscape buffers along Monticello Avenue, Ironbound Road, and Old Ironbound Road.

- The applicant is proposing the following building setback reductions:
  - Required 50-foot building setback to a 30-foot building setback along Monticello Avenue.
  - Required 50-foot building setback to a 25-foot building setback along Ironbound Road and Old Ironbound Road.

- The applicant is proposing the following landscape buffer reductions:
  - Required 50-foot landscape buffer to a 30-foot landscape buffer along Monticello Avenue.
  - Required 30-foot landscape buffer to a 15-foot landscape buffer along Ironbound Road and Old Ironbound Road.

Based on a preliminary review of the building setback reduction request, staff is generally supportive of the request and finds the pro-

posal could meet the criteria found in Section 24-392(1). Staff finds that this location is within the New Town Community Character Area (CCA) and along the Monticello Avenue Community Character Corridor (CCC). The applicant is also offering site design which meets or exceeds the Comprehensive Plan Development Standards through its adopted Design Guidelines (Attachment No. 9).

Based on a preliminary review of the landscape buffer reduction, for the same findings just noted, staff is generally supportive of the request and finds the proposal could meet the criteria found in Section 24-98, as the site will be developed in accordance with the adopted Design Guidelines.

Prior to site plan approval, the applicant will need to demonstrate how the proposed site will meet the adopted Design Guidelines. The Planning Director and the New Town Development Review Board (DRB) will need to review and approve all site design elements to ensure compliance with the Design Guidelines (SUP Condition No. 2).

The New Town DRB met on October 28, 2021, to review the master plan and building elevations and has approved the proposal in its conceptual form. Prior to site plan approval, the New Town DRB will review the design elements to ensure consistency with building elevations and Design Guidelines.

SURROUNDING ZONING AND DEVELOPMENT

The zoning of the surrounding properties:

- Properties to the north are zoned MU, Mixed Use.
- Properties to the west are zoned B-1, General Business.
- Properties to the south are zoned B-1, General Business and R-2, General Residential.
- Properties to the east are zoned M-1, Limited Business/Industrial.

The 2045 Comprehensive Plan designation of surrounding properties:

- Properties to the north, east, and west are MU, Mixed Use.
- Properties to the south are Low Density Residential.

The property is at the Route 199/Monticello Avenue interchange, as well as the intersection of Ironbound Road and Monticello Avenue.

The property is generally bounded by New Town to the north, Mount Pleasant Church to the west, Ironbound Road Mini Storage to the south, and Courthouse Commons and James City Service Authority (JCSA) water tanks to the east.

Impacts/Potentially Unfavorable Conditions	**Status** *(No Mitigation Required/Mitigated/Not Fully Mitigated)*	**Considerations/Proposed Mitigation of Potentially Unfavorable Conditions**
Public Transportation: Vehicular	Not Fully Mitigated	- See discussion on Pages 2-6.
Public Transportation: Bicycle/Pedestrian	Mitigated	- Per the Adopted Regional Bikeways Map and Pedestrian Accommodation Master Plan, a sidewalk is required on the north or east side of all roads within a CCA. A sidewalk is proposed on the north side of Old Ironbound Road. - There is an existing shared-use path along Monticello Avenue and an existing sidewalk along Ironbound Road. - Ironbound Road is identified on the Adopted Regional Bikeways Map as a shared roadway.
Public Safety	No Mitigation Required	- Fire Station 3 on John Tyler Highway serves this area of the County and is approximately 1.9 miles from the proposed site. - Staff finds that this project does not generate impacts that require mitigation to the County's Fire Department facilities or services.
Public Schools	No Mitigation Required	- N/A since no residential dwelling units are proposed.
Public Parks and Recreation	No Mitigation Required	- N/A since no residential dwelling units are proposed.
Public Libraries and Cultural Centers	No Mitigation Required	- Staff finds that this project does not generate impacts that require mitigation.
Groundwater and Drinking Water Resources	No Mitigation Required	- The property receives public water and sewer. - JCSA has reviewed the proposal and recommended approval.

Impacts/Potentially Unfavorable Conditions	**Status** *(No Mitigation Required/Mitigated/Not Fully Mitigated)*	**Considerations/Proposed Mitigation of Potentially Unfavorable Conditions**
Watersheds, Streams, and Reservoirs Project is located in the Mill Creek Watershed.	Mitigated	- The Stormwater and Resource Protection Division has reviewed this application and provided SUP conditions (Condition Nos. 14, 15, and 16) to mitigate stormwater impacts and impacts to the Mill Creek Watershed.
Cultural/Historic	No Mitigation Required	- The subject property has been previously disturbed and has no known cultural resources on-site.
Nearby and Surrounding Properties	Mitigated	- The anticipated traffic has been mitigated per the SUP condition that requires improvements to the surrounding roadways (Condition No. 12). The subject property must adhere to the County's Noise Ordinance, and the proposed SUP conditions will restrict light pole height, outdoor noise and outside display or sales.
Community Character	Mitigated	- Monticello Avenue is a CCC, and this parcel is located within the New Town CCA. - The applicant has requested a reduced CCC landscape buffer and building setback along Monticello Avenue, Ironbound Road, and Old Ironbound Road. - An enhanced landscape SUP condition has been provided along with conditions regarding architectural reviews of the convenience store and the canopy, both of which will be required to be reviewed by the Planning Director and the New Town DRB (Condition Nos. 3, 4, and 6).
Covenants and Restrictions	No Mitigation Required	- The applicant has verified that he is not aware of any covenants or restrictions on the property that prohibit the proposed use.

2045 COMPREHENSIVE PLAN

The site is designated Mixed Use on the 2045 Comprehensive Plan Land Use Map.

There are two levels of Mixed Use in the 2045 Comprehensive Plan. This property is located within the New Town Mixed Use area and is a Level 2 designation.

Level 2 areas are described as:

- Being located inside the PSA.
- Designed as a walkable mixed-use community that supports multi-modal transportation choices and fosters substantial pedestrian activity.
- Located at or near interstate interchanges or the intersections of major thoroughfares, or adjacent to mixed use areas of similar intensity, and intended to maximize the economic development potential of these areas by providing for more intensive commercial, office, and industrial development, with ancillary residential uses to make a complete community.
- Have characteristics such as terrain, high-capacity access, and visibility that support higher density development with high design quality to serve as a County-wide focal point.
- Include mixed uses within buildings such as office or residential above ground floor retail for most buildings. Single use buildings should be integrated into a neighborhood of mixed uses and densities to create a more urban neighborhood character.
- Designed as a walkable mixed-use community that supports multi-modal transportation choices and fosters substantial pedestrian activity.

The principal suggested uses for the New Town Mixed Use area are a mixture of commercial, office, residential, and limited industrial. As a commercial use, this proposal is consistent with this guidance. The general guidance for recommended uses in Level 2 also states that "Each development should have a mix of uses that complement the area and should be designed as a complete community to foster pedestrian access to a wide range of employment, residential, recreational, civic, and service opportunities."

Although this site is not located inside the New Town Development and not referenced on the New Town Master Plan, the 2045 Comprehensive Plan recommends the parcels south of Monticello Avenue and west of Ironbound Road to have the design, scale, and development pattern that is consistent with the New Town Development. To ensure consistency, the New Town DRB has reviewed the Master Plan and architectural elevations of the building and canopy. The New Town DRB approved the submitted documents on October 28, 2021. Prior to site plan approval, the New Town DRB will review the final design elements of the site (SUP Condition No. 2).

Staff finds the proposal meets the following Comprehensive Plan goals:

<u>Land Use</u>

LU 4.5 - Promote infill, redevelopment, revitalization, and rehabilitation within the PSA.

<u>Community Character</u>

CC 2.3 - In New Town, continue to support the design review process by working closely with the New Town DRB and supporting the implementation of New Town's design guidelines.

CC 2.3.1 - For areas within the New Town CCA but not subject to the New Town Master Plan and/or proffers, ensure that new development is consistent with existing adjacent development and the New Town design guidelines.

Transportation

T 1.2 - Expect new developments to follow recommended densities, intensities, and development patterns that will maintain an acceptable level of service on the surrounding roads and intersections consistent with the land use context (rural, suburban, urban) and the functional classification of the roadway. Ensure that new developments do not compromise planned transportation enhancements.

PROPOSED SUP CONDITIONS

The full text of the proposed conditions are provided in Attachment No. 1.

STAFF RECOMMENDATION

With the attached conditions, staff finds that the proposal is compatible with surrounding zoning and development and consistent with the 2045 Comprehensive Plan.

Staff therefore recommends the Board of Supervisors approve of the proposed SUP subject to the proposed conditions.

TL/md
SUP21-17_4007IrnbdConv

Attachments:
1. Resolution
2. Location Map
3. Master Plan
4. Community Impact Statement
5. Ironbound Crossing Traffic Impact Analysis
6. Illustrative Plan
7. Building Elevations
8. Gas Canopy Elevation
9. Z-18-0006 Adopted Design Guidelines
10. Z-18-0006 Adopted Proffers
11. Correspondence from Adjacent Property Owners
12. Unapproved Minutes of the January 5, 2022, Planning Commission Meeting

R E S O L U T I O N

CASE NO. SUP-21-0017. 4007 IRONBOUND ROAD

CONVENIENCE STORE WITH FUEL

WHEREAS, the Board of Supervisors of James City County, Virginia, has adopted by Ordinance specific land uses that shall be subjected to a Special Use Permit (SUP) process; and

WHEREAS, Mr. Mark Rinaldi, on behalf of the property owner, G-Square, Inc., has applied for an SUP on property located at 4007 Ironbound Road, further identified as James City County Real Estate Tax Map Parcel No. 3840100002A (the "Property") to allow for a convenience store with fuel sales pursuant to Section 24-390 of the County Code, a convenience store pursuant to Section 24-11(a)(1) of the County Code, and a commercial building or group of buildings, which generates, or would be expected to generate, a total of 100 or more additional trips to and from the Property during the peak hour of the operation pursuant to Section 24-11(a)(3) of the County Code; and

WHEREAS, the Planning Commission, following its public hearing on January 5, 2022, recommended approval of Case No. SUP-21-0017 by a vote of 6-0; and

WHEREAS, a public hearing was advertised, adjoining property owners notified, and a hearing conducted on Case No. SUP-21-0017; and

WHEREAS, the Board of Supervisors of James City County, Virginia, finds this use to be consistent with good zoning practices and the 2045 Comprehensive Plan Land Use Map designation for the Property.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, after consideration of the factors in Section 24-9 of the James City County Code, does hereby approve the issuance of Case No. SUP-21-0017 as described herein with the following conditions:

1. *Master Plan*. This Special Use Permit ("SUP") shall apply to property located at 4007 Ironbound Road, which is further identified as James City County Real Estate Tax Map Parcel No. 3840100002A, (the "Property"). The SUP shall be valid for a convenience store of approximately 6,049 square feet that sells and dispenses fuel (the "Convenience Store"). All final development plans for the Property shall be consistent with the Master Plan entitled, "Master Plan Ironbound Crossing for Special Use Permit" prepared by AES, dated September 21, 2021, and revised December 7, 2021 (the "Master Plan"), as determined by the Director of Planning, with any deviations considered per Section 24-23(a)(2) of the Zoning Ordinance, as amended.

2. *Design Guidelines*. The Property shall be developed in accordance with the adopted design guidelines entitled "Design Guidelines for Ironbound Crossing in James City County, Virginia" prepared by AES Consulting Engineers and Hopke & Associates, dated December 13, 2018 (the "Design Guidelines"). Prior to site plan approval, the Planning Director, or designee, with consultation with the New Town Design Review Board (DRB), shall review the final design elements for consistency with the Design Guidelines.

3. *Architectural Review - Convenience Store.* Exterior building materials and colors for all structures shall be generally consistent with the drawing entitled "WAWA W50 FB M VA_v.2019.01 STORE #8687" prepared by Cuhaci & Peterson, dated November 3, 2021, and revised December 20, 2021 (the "Exterior Design"). Prior to site plan approval for the Convenience Store, the Planning Director, or designee, with consultation with the New Town DRB, shall review and approve the final building elevations and architectural design for consistency with this Condition and Condition No. 2. In the event the Planning Director disapproves the architectural elevations, the applicant may appeal the decision to the Development Review Committee (DRC), which shall forward a recommendation to the Planning Commission.

4. *Architectural Review - Gas Pump Canopy and Trash Compound.* The architecture of (1) the canopy covering the fuel dispensing stations (the "Canopy") and (2) the trash compound as shown on the Master Plan, including any columns, shall match the Design Guidelines, the Exterior Design, and the exterior building materials of the Convenience Store. The Canopy shall have a maximum height of twenty-one (21) feet measured from the finished grade to the top of the pitched A-frame roof structure as shown in the drawing entitled, "WAWA Gas Canopy Stacked 6 A-Frame - Trash Compound MAOF17-R", prepared by Cuhaci & Peterson, dated September 10, 2019, and revised December 20, 2021. No more than two signs shall be allowed on the Canopy. The Canopy shall not include gas pricing signs. Prior to site plan approval, the Canopy architecture shall be approved by the Planning Director for consistency with this condition, with consultation with the New Town DRB. In the event the Planning Director disapproves the architectural elevations, the applicant may appeal the decision to the DRC, which shall forward a recommendation to the Planning Commission.

5. *Lighting.* There shall be no light trespass, defined as light intensity measured at 0.1 footcandle or higher extending beyond any property line or into the public right-of-way, unless approved in writing by the Planning Director. All lights, including any lighting on the Canopy, shall have recessed fixtures with no bulb, lens, or globe extending below the casing or the Canopy ceiling. Light poles on the Property shall not exceed twenty (20) feet in height. The lighting for the Property, to include the Canopy lighting, shall be consistent with the Design Guidelines and reviewed and approved by the Planning Director prior to final site plan approval.

6. *Landscape*. As part of the initial site plan submittal, a landscape plan shall be submitted to the Planning Director or designee consistent with the following standards:

   a. The perimeter buffer shall be landscaped to the provisions of Section 24-96 of the Zoning Ordinance for General Landscape Areas, except that the required evergreen tree and shrub mixture shall be increased from 35% to at least 45%.
   b. Any proposed fencing or wall shall be shown on the landscape plan and be consistent with the Design Guidelines.
   c. The required plantings between the Property and 4002 Ironbound Road shall be shown on the site plan for the Property and shall be guaranteed prior to site plan approval in a manner acceptable to the County Attorney. All plantings within this area shall be installed prior to Certificate of Occupancy for the Convenience Store.

Prior to final site plan approval, the landscape plan shall be reviewed and approved by the Planning Director for consistency with this condition. The Planning Director may consult with the New Town DRB in determining consistency with Condition No. 6(b).

7. *Signage*. All building face signage shall be externally illuminated or use back-lit or channeled lettered lighting as defined in Section 24-67 of the Zoning Ordinance. For any back-lit or channeled lettered signs, the sign shall meet the criteria listed in Section 24-72 of the Zoning Ordinance, or successor section. In addition to any building face signage as permitted by the Zoning Ordinance, the Property shall be allowed one exterior freestanding sign. The freestanding sign shall be externally illuminated, monument style, not exceed eight (8) feet in height, and have a base of brick or other materials similar in type and color with the architecture of the Convenience Store. The Planning Director shall approve the design of the signage for consistency with this condition prior to initial site plan approval and prior to any subsequent sign modifications.

8. *Screening of Site Features*. All dumpsters and roof and ground-mounted HVAC and mechanical units located on the Property shall be screened by an enclosure composed of masonry, closed cell PVC, prefinished metal, or cementitious panels in detail and colors to blend with adjacent building materials. Where present, such features shall be shown on the site plan and shall be reviewed and approved by the Planning Director for consistency with this condition prior to site plan approval.

9. *Outdoor Display, Sale, or Storage*. Unless otherwise stated in this condition, no outside display, sale, or storage of merchandise shall be permitted on the Property. As used for this condition, the term "merchandise" shall include but not be limited to ice, soda, candy, and/or snack machines. No more than two (2) outside vending machines and one (1) outside ice chest shall be permitted and, if used, shall be situated against the exterior wall not facing Monticello Avenue and shall be screened with building materials similar in type and color with the site architecture to minimize visual impacts from adjacent road rights-of-way. Final screening design shall be approved by the Planning Director prior to site plan approval.

10. *Intercom and Speaker Noise*. All intercom and other speaker systems on the Property shall operate in such a manner that they are not audible from adjacent properties.

11. *Fueling Islands*. There shall be no more than six (6) fueling islands on the Property as shown on the Master Plan.

12. *Traffic Impacts*. Prior to final site plan approval, all recommended improvements and mitigation measures listed within the approved traffic impact analysis titled "Traffic Impact Analysis for Proposed Special Use Permit of Ironbound Crossing" prepared by DRW Consultants, LLC, dated November 23, 2021, as approved by the Planning Director and Virginia Department of Transportation shall be guaranteed in a manner acceptable to the County Attorney. All recommended improvements and mitigation measures shall be installed prior to issuance of a Certificate of Occupancy for the Convenience Store.

13. *Water Conservation Agreement*. Water conservation standards shall be enforced on the Property. Water conservation standards shall be submitted to and approved by the James City Service Authority prior to final site plan approval for the Property. The standards may include, but shall not be limited to, such water conservation measures as limitations on the installation and use of irrigation systems and irrigation wells, the use of approved landscaping materials including the use of drought-tolerant plants where appropriate, and the use of water-conserving fixtures and appliances to promote water conservation and minimize the use of public water resources.

14. *Spill Prevention, Control, and Countermeasures (SPCC) Plan*. Prior to the issuance of a Land Disturbing Permit, an SPCC Plan which addresses chemical handling, including but not limited to oil, diesel, and gasoline, shall be reviewed and approved by the Director of Stormwater and Resource Protection.

15. *Offsite Compliance Options*. This site may not use offsite compliance options (*i.e.*, nutrient credit bank purchases) to achieve the required water quality. In order to best protect the impaired downstream systems, all required water quality needs/phosphorus nutrient reductions must be met onsite through the proposed stormwater design.

16. *Quantity Control*. As the proposed stormwater design directs flows into an existing system, attenuation of the 2-, 10-, and 100-year storms are required at the point of discharge into the existing 42" RCP crossing Old Ironbound Road. This includes attenuation of the bypass system shown on the Master Plan.

17. *Commencement of Construction*. Construction on both the Convenience Store and the Canopy shall commence within thirty-six (36) months from the date of approval of this Special Use Permit or this permit shall be void. Construction shall be defined as obtaining building permits and an approved footing inspection and/or foundation inspection for the Convenience Store and the Canopy.

18. *Severance Clause*. This Special Use Permit is not severable. Invalidation of any word, phrase, clause, sentence, or paragraph shall invalidate the remainder.

_____
John J. McGlennon
Chairman, Board of Supervisors

ATTEST:

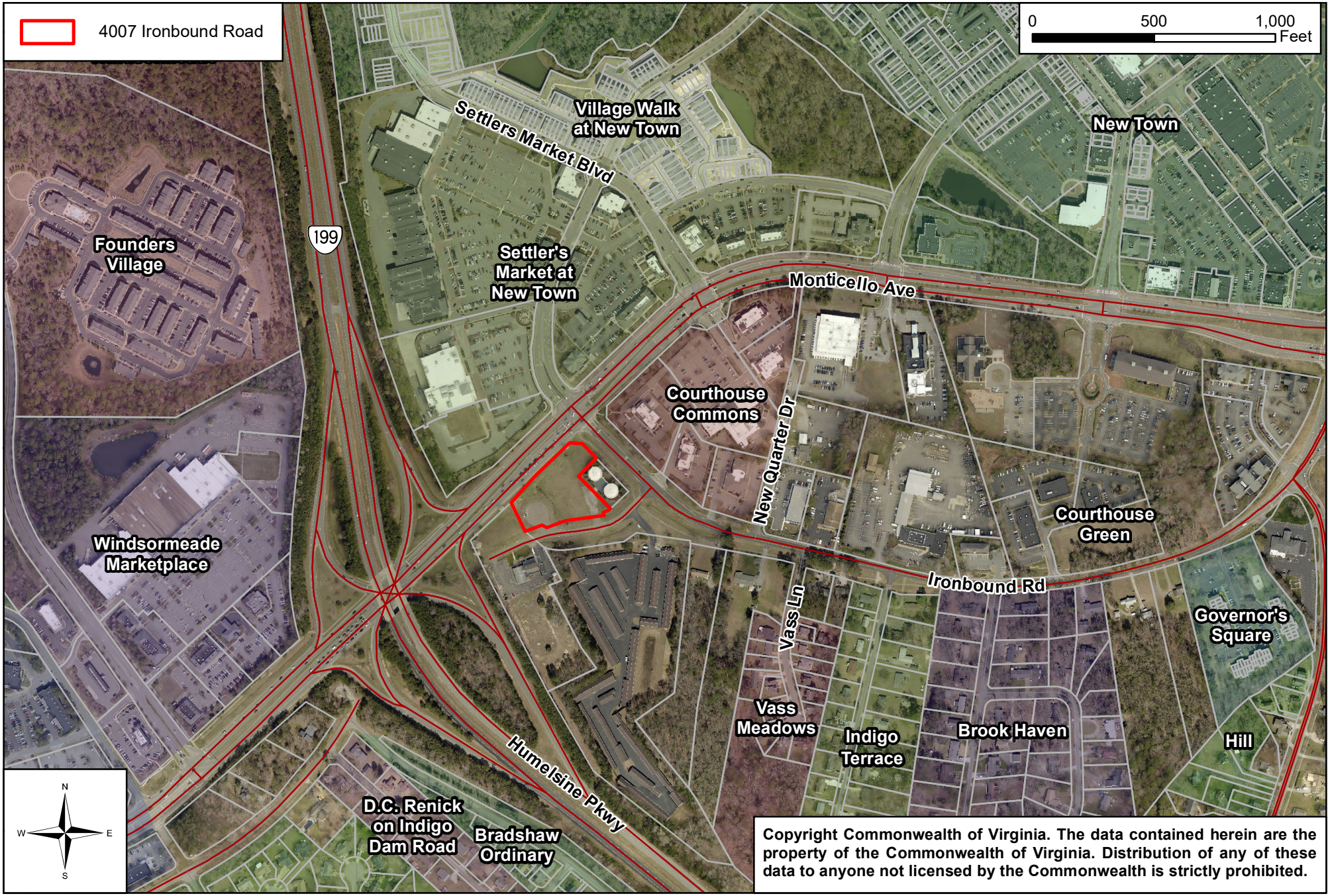
_____
Teresa J. Saeed
Deputy Clerk to the Board

	VOTES			
	AYE	NAY	ABSTAIN	ABSENT
ICENHOUR	____	____	____	____
HIPPLE	____	____	____	____
LARSON	____	____	____	____
SADLER	____	____	____	____
MCGLENNON	____	____	____	____

Adopted by the Board of Supervisors of James City County, Virginia, this 8th day of February, 2022.

SUP21-17_4007IrnbdConv-res

JCC SUP-21-0017, 4007 Irounbound Road
Convenience Store With Fuel



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MASTER PLAN
IRONBOUND CROSSING
FOR
SPECIAL USE PERMIT

JAMESTOWN DISTRICT JAMES CITY COUNTY VIRGINIA

AES PROJECT NUMBER W10481-00

GENERAL NOTES

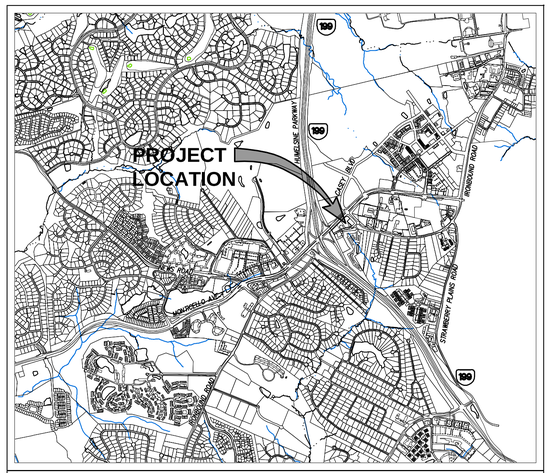
1. PROPERTY OWNER: G-SQUARE, INC.
   302 HARRISON AVE
   WILLIAMSBURG, VA 231853549

   LESSEE: BUSH CONSTRUCTION CORPORATION
   4029 IRONBOUND ROAD, SUITE 100
   WILLIAMSBURG, VA 23188

2. PARCEL IDENTIFICATION 3840100002A

   ADDRESS: 4007 IRONBOUND ROAD
   WILLIAMSBURG, VA 23188

3. SITE IS ZONED GENERAL BUSINESS (B1) DISTRICT
4. SITE IS SITUATED IN THE MILL CREEK WATERSHED OF JAMES CITY COUNTY.
5. HYDROLOGIC UNIT CODE: JL33 (JAMES RIVER - LOWER CHIPPOKES CREEK 020802060704)
6. BASED ON THE FEMA FLOOD INSURANCE RATE MAP FOR JAMES CITY COUNTY, VIRGINIA (MAP PANEL 51095C0138D & 51095C0119D) AS OF 12/16/15, NO PORTIONS OF THIS PROPERTY FALL WITHIN THE 100-YEAR FLOODPLAIN.
7. SITE AREA = 1.93 AC. ±
8. PROPOSED USE: CONVENIENCE STORE W. FUEL SALES
9. PARKING:
   MIN. PARKING REQUIRED: 31 SPACES
   MAX PARKING ALLOWED: 38 SPACES
   PARKING PROVIDED: 56 SPACES
   (VARIANCE REQUESTED TO EXCEED MAX. PARKING ORDINANCE)



VICINITY MAP
(Approximate Scale: 1"=2,000')

INDEX OF SHEETS

SHEET NO.	SHEET DESCRIPTION
MP1.0	COVER SHEET
MP2.0	ENVIRONMENTAL INVENTORY AND EXISTING CONDITIONS
MP2.1	APPROVED ZONING MASTER PLAN
MP3.0	SITE MASTER PLAN
MP4.0	CONCEPTUAL STORMWATER MASTER PLAN

DEVELOPER INFORMATION

CONTACT: BUSH CONSTRUCTION CORPORATION
4029 IRONBOUND ROAD, SUITE 100
WILLIAMSBURG, VA 23188
MRINALDI@BUSHCOS.COM
ATTN: MARK RINALDI

Rev.	Date	Description	Revised By
1	12/10/2021	REVISED MASTER PLAN	JAG

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
Phone: (757) 253-0040
www.aesva.com
Hampton Roads | Central Virginia | Middle Peninsula

MASTER PLAN
IRONBOUND CROSSING
FOR
SPECIAL USE PERMIT
JAMESTOWN DISTICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	W10481-00
Scale: N/A	Date: 09/21/2021
Sheet Title: COVER SHEET	
Sheet Number MP1.0	

SOIL CHARACTERISTICS - JAMES CITY & YORK COUNTIES AND THE CITY OF WILLIAMSBURG, VA

SOILS NO.	SOIL NAME	HYDROLOGIC SOIL GROUP	TYPICAL SLOPES	EROSION FACTOR (K_W) WHOLE SOIL	EROSION FACTOR (T)	WATER TABLE UPPER LIMIT (FT)
11C	CRAVEN COMPLEX	C	6–10%	0.32	5	2.0–3.0
11C	UCHEE COMPLEX	A	6–10%	0.10–0.28	5	3.5–5.0
15F	EMPORIA COMPLEX	C	25–50%	0.24–0.28	4	3.0–4.5
16	IZAGORA LOAM	C	0–3%	0.24–0.28	5	1.5–3.0
17	JOHNSTON COMPLEX	D	0–2%	0.17	5	0.0
18B	KEMPSVILLE FINE SANDY LOAM	B	2–6%	0.24–0.28	4	–
29A	SLAGLE FINE SANDY LOAM	C	0–2%	0.24–0.28	5	1.5–3.0

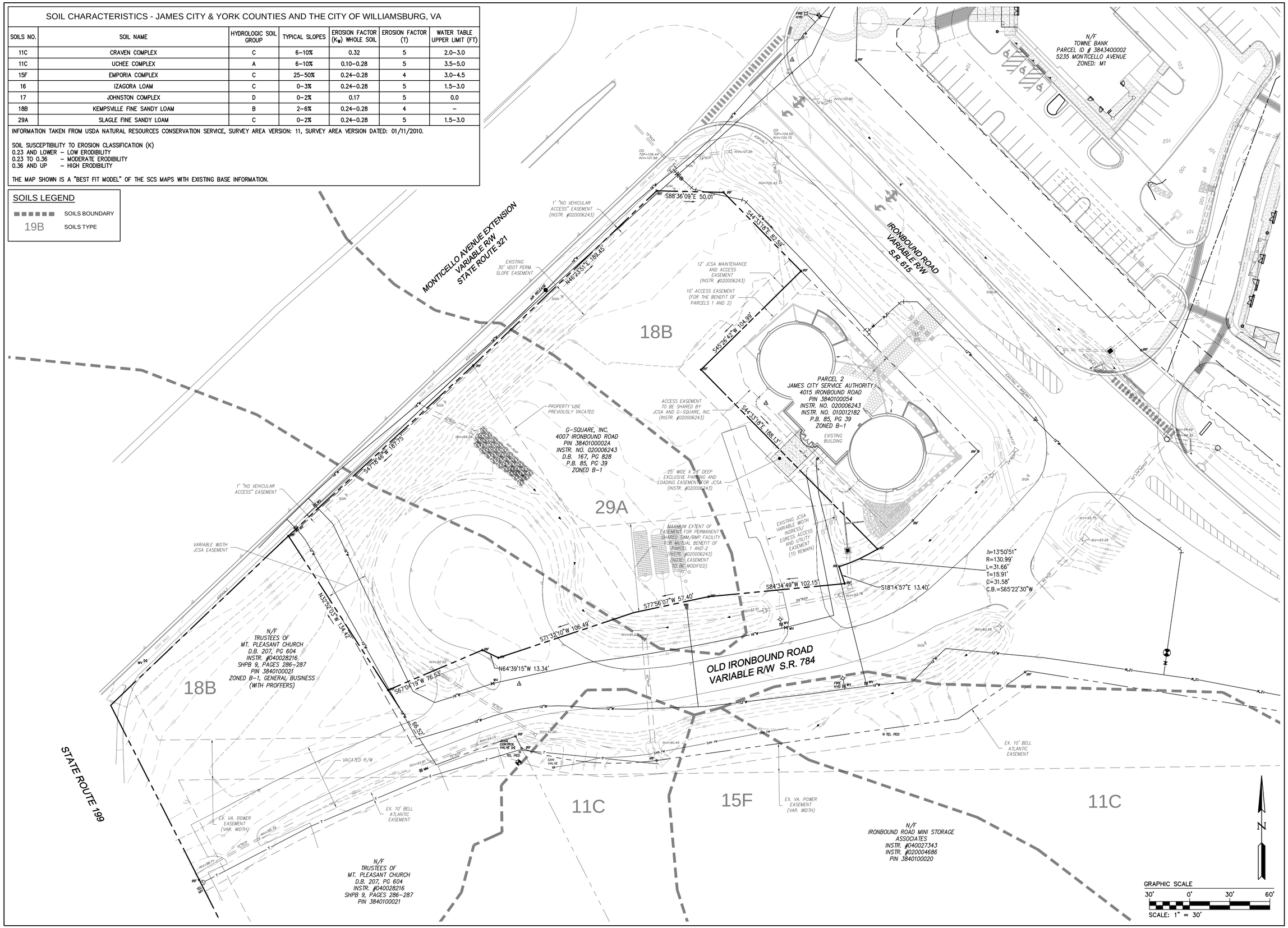
INFORMATION TAKEN FROM USDA NATURAL RESOURCES CONSERVATION SERVICE, SURVEY AREA VERSION: 11, SURVEY AREA VERSION DATED: 01/11/2010.

SOIL SUSCEPTIBILITY TO EROSION CLASSIFICATION (K)
0.23 AND LOWER – LOW ERODIBILITY
0.23 TO 0.36 – MODERATE ERODIBILITY
0.36 AND UP – HIGH ERODIBILITY

THE MAP SHOWN IS A "BEST FIT MODEL" OF THE SCS MAPS WITH EXISTING BASE INFORMATION.

SOILS LEGEND

SOILS BOUNDARY
19B SOILS TYPE



Rev.	Date	Description	Revised By
1	12/10/2021	REVISED MASTER PLAN	JAG

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
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Hampton Roads | Central Virginia | Middle Peninsula

MASTER PLAN
IRONBOUND CROSSING
FOR
SPECIAL USE PERMIT
JAMESTOWN DISTICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	W10481-00
Scale: 1"=30'	Date: 09/21/2021

Sheet Title:
ENVIRONMENTAL INVENTORY AND EXISTING CONDITIONS

Sheet Number
MP2.0

DEVELOPMENT TABULATION					
AREA NUMBER	AREA DESIGNATION	PROPOSED USE	GROSS FLOOR AREA (S.F.)	AREA IN ACRES	PERCENT OF TOTAL SITE
1	E	COMMERCIAL	20,000	1.93	73.1%
1	G	OFFICE	25,000		
2	I	INSTITUTIONAL	3,000	0.74	26.9%
			TOTALS	2.67	100.0%

DEVELOPMENT TABULATION NOTES:

1. A COMMERCIAL SPECIAL USE PERMIT (SUP) PURSUANT TO SECTION 24–11 OF THE ZONING ORDAINCE WILL BE REQUIRED FOR ANY PROPOSED USE MEETING THE CRITERIA LISTED IN SECTION 24–11 OF THE ZONING ORDINANCE NOTWITHSTANDING THE APPROVAL OF THIS MASTER PLAN. SUBMITTAL REQUIREMENTS LISTED IN 24–23 (a)(1) SUBSECTIONS c, f AND g ARE SPECIFICALLY WAIVED GIVEN PRIOR SITE LAND DISTURBANCES
2. AREA 1 MAY INCLUDE A COMBINATION OF COMMERCIAL AND OFFICE USE OR IT MAY BE COMPRISED OF ONLY COMMERCIAL OR ONLY OFFICE USE. CUMULATIVE MAXIMUM SQUARE FOOTAGE SHALL NOT EXCEED THE AGGREGATE LISTED IN THE TABLE EXCEPT AS APPROVED IN A SPECIAL USE PERMIT APPROVED BY THE BOARD OF SUPERVISORS.
3. AREA 1 USES ARE RESTRICTED IN ACCORDANCE WITH THE SUBMITTED PROFFER CONDITIONS FOR THE PROPERTY.
4. AREA 2 MAY INCLUDE UP TO 3,000 SQUARE FEET OF STRUCTURES COMPRISED ONLY OF USES ACCESSORY TO A PLACE OF PUBLIC ASSEMBLY.

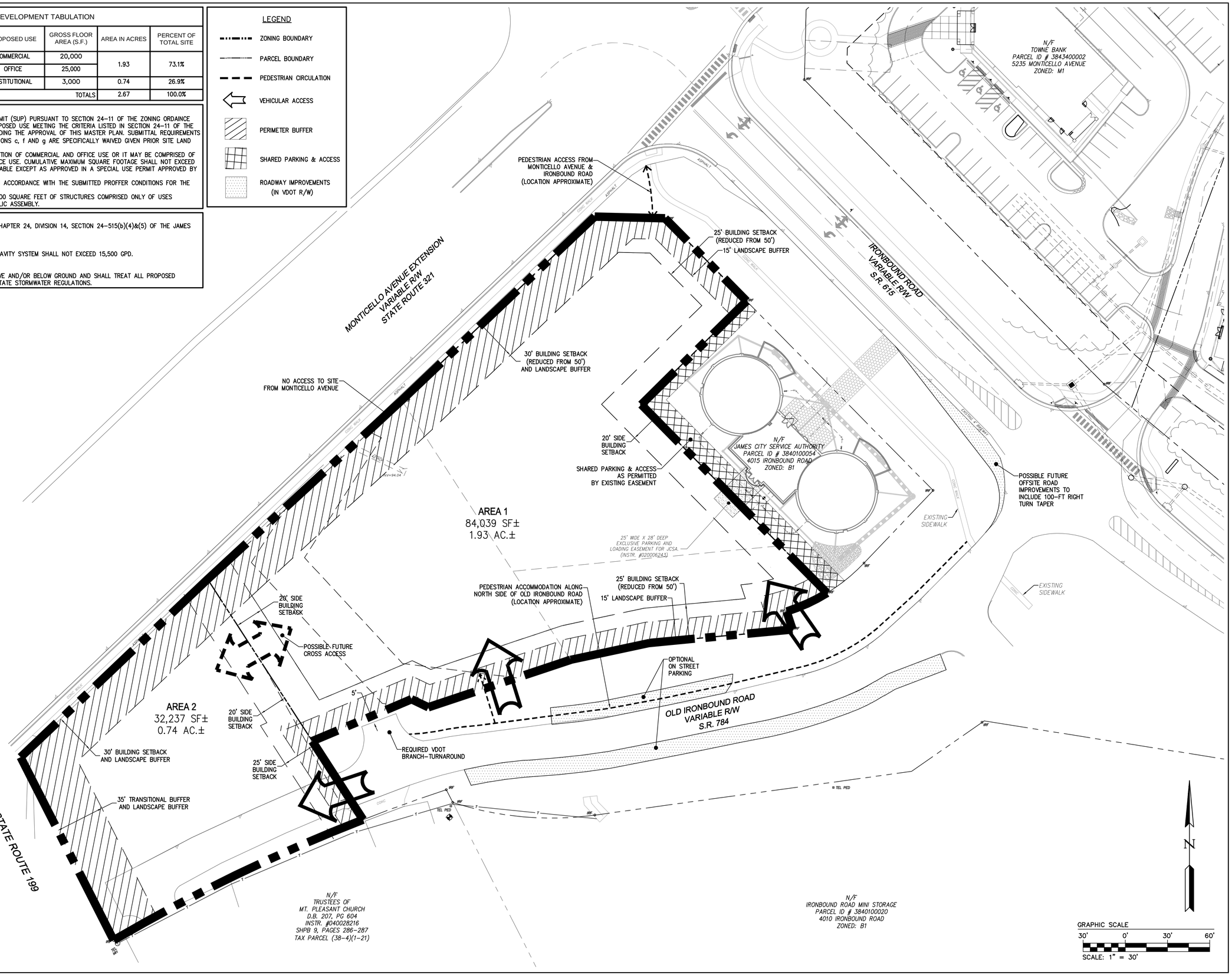
MASTER PLAN NOTE:
THIS MASTER PLAN IS BINDING PER CHAPTER 24, DIVISION 14, SECTION 24–515(b)(4)&(5) OF THE JAMES CITY COUNTY ZONING ORDINANCE.

SEWER NOTE:
SEWER DISCHARGING TO THE JCSA GRAVITY SYSTEM SHALL NOT EXCEED 15,500 GPD.

STORMWATER NOTE:
ON SITE STORMWATER SHALL BE ABOVE AND/OR BELOW GROUND AND SHALL TREAT ALL PROPOSED STORMWATER IN ACCORDANCE WITH STATE STORMWATER REGULATIONS.

LEGEND

- ZONING BOUNDARY
- PARCEL BOUNDARY
- PEDESTRIAN CIRCULATION
- VEHICULAR ACCESS
- PERIMETER BUFFER
- SHARED PARKING & ACCESS
- ROADWAY IMPROVEMENTS (IN VDOT R/W)



Rev.	Date	Description	Revised By
1	12/10/2021	REVISED MASTER PLAN	JAG

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
Phone: (757) 565-1677
www.aesva.com
Hampton Roads | Central Virginia | Middle Peninsula

MASTER PLAN
IRONBOUND CROSSING
FOR
SPECIAL USE PERMIT
JAMESTOWN DISTICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	W10481-00
Scale: 1"=30'	Date: 09/21/2021

Sheet Title:
APPROVED ZONING MASTER PLAN

Sheet Number
MP 2.1

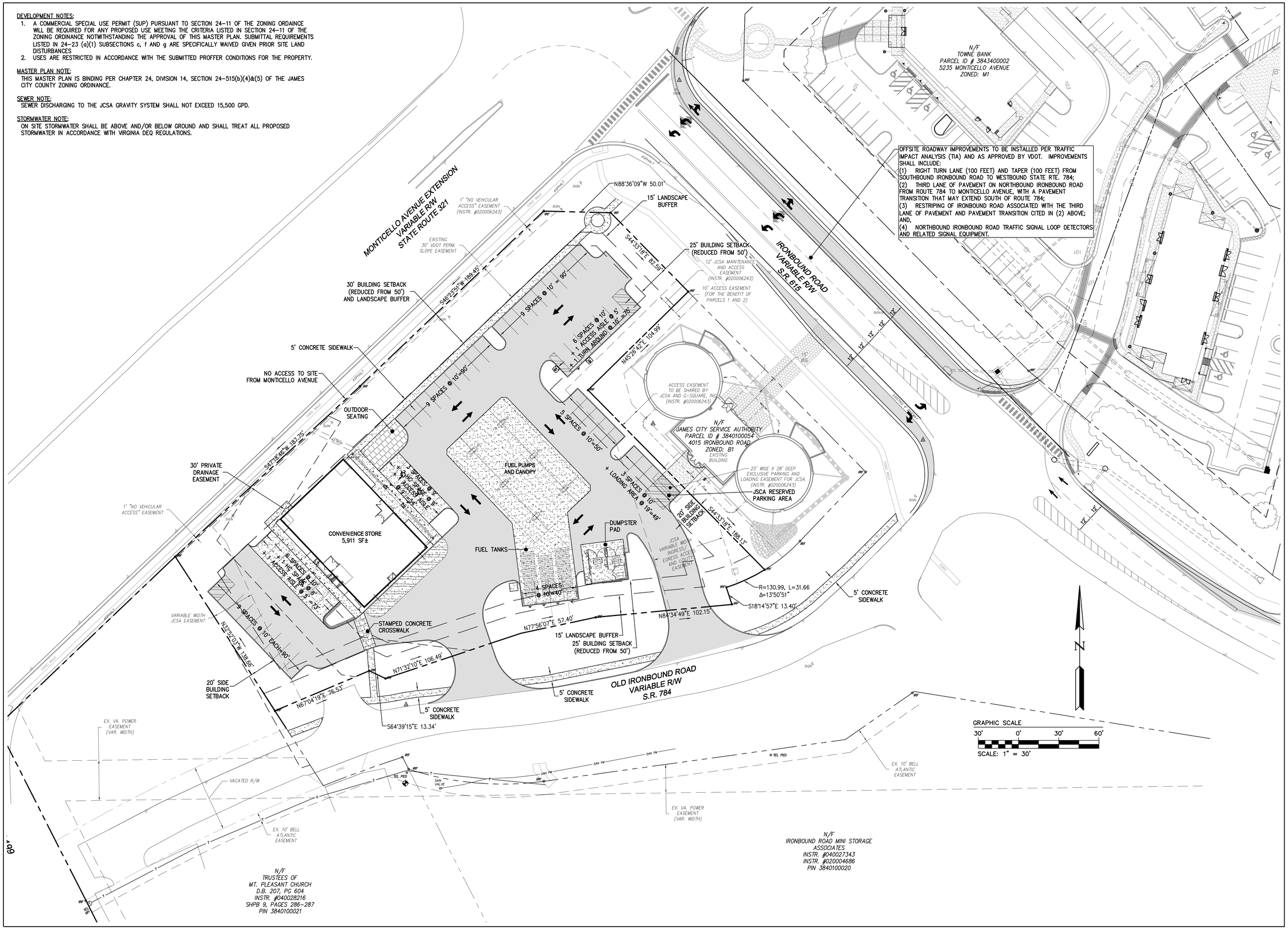
DEVELOPMENT NOTES:

1. A COMMERCIAL SPECIAL USE PERMIT (SUP) PURSUANT TO SECTION 24–11 OF THE ZONING ORDAINCE WILL BE REQUIRED FOR ANY PROPOSED USE MEETING THE CRITERIA LISTED IN SECTION 24–11 OF THE ZONING ORDINANCE NOTWITHSTANDING THE APPROVAL OF THIS MASTER PLAN. SUBMITTAL REQUIREMENTS LISTED IN 24–23 (a)(1) SUBSECTIONS c, f AND g ARE SPECIFICALLY WAIVED GIVEN PRIOR SITE LAND DISTURBANCES
2. USES ARE RESTRICTED IN ACCORDANCE WITH THE SUBMITTED PROFFER CONDITIONS FOR THE PROPERTY.

MASTER PLAN NOTE:
THIS MASTER PLAN IS BINDING PER CHAPTER 24, DIVISION 14, SECTION 24–515(b)(4)&(5) OF THE JAMES CITY COUNTY ZONING ORDINANCE.

SEWER NOTE:
SEWER DISCHARGING TO THE JCSA GRAVITY SYSTEM SHALL NOT EXCEED 15,500 GPD.

STORMWATER NOTE:
ON SITE STORMWATER SHALL BE ABOVE AND/OR BELOW GROUND AND SHALL TREAT ALL PROPOSED STORMWATER IN ACCORDANCE WITH VIRGINIA DEQ REGULATIONS.



Rev.	Date	Description	Revised By
1	12/10/2021	REVISED MASTER PLAN	JAG

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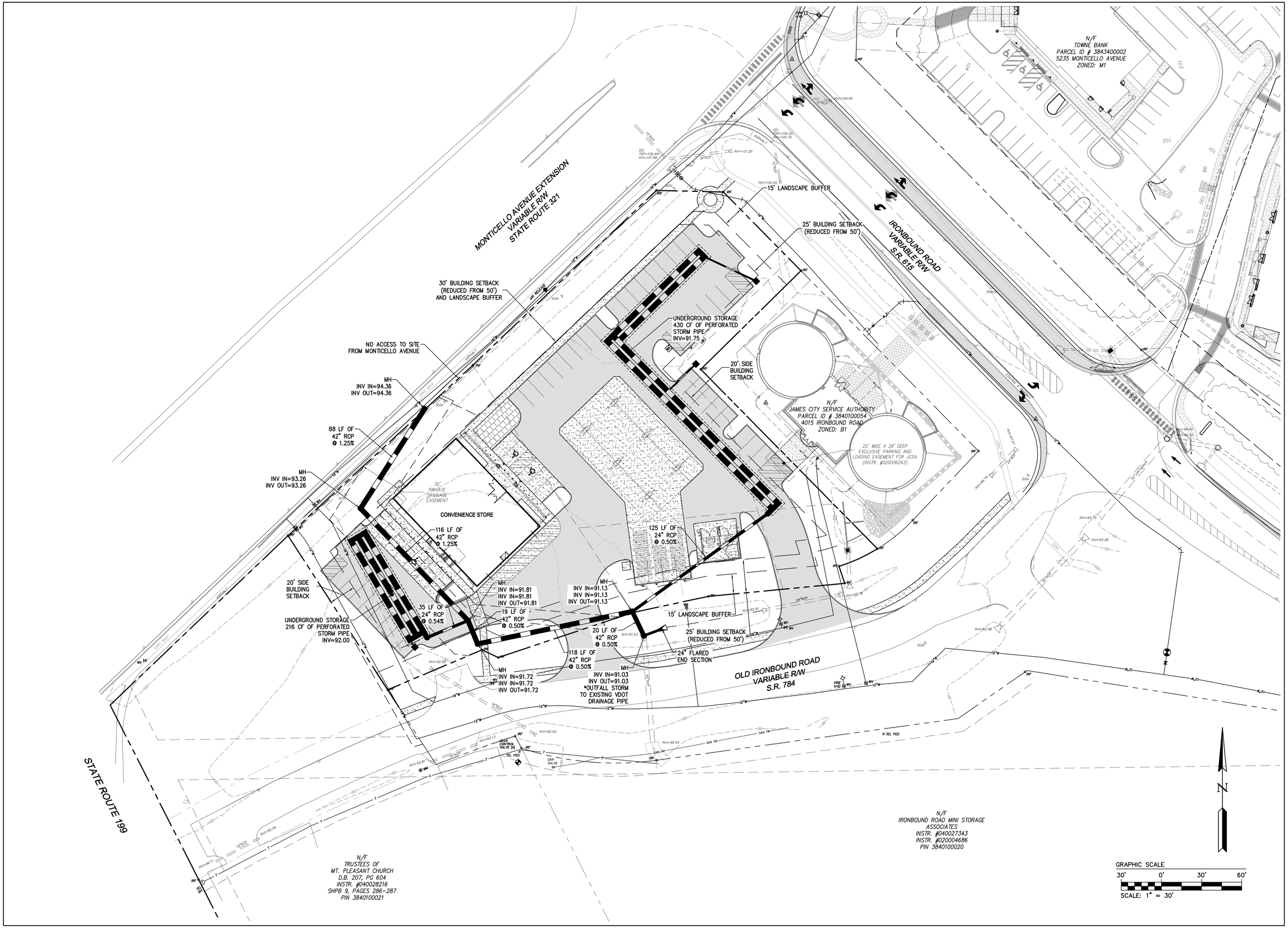
MASTER PLAN
IRONBOUND CROSSING
FOR
SPECIAL USE PERMIT
JAMESTOWN DISTICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	W10481-00
Scale: 1"=30'	Date: 09/21/2021

Sheet Title:
SITE MASTER PLAN

Sheet Number
MP3.0



Rev.	Date	Description	Revised By
1	12/10/2021	REVISED MASTER PLAN	JAG

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MASTER PLAN
IRONBOUND CROSSING
FOR
SPECIAL USE PERMIT
JAMESTOWN DISTICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	W10481-00
Scale: 1"=30'	Date: 09/21/2021

Sheet Title:
CONCEPTUAL
STORMWATER
MASTER PLAN

Sheet Number
MP4.0

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Community Impact Statement

for

Ironbound Crossing

Prepared For

Bush Construction Corporation

September 2021

AES Project Number: W10481-00

Prepared by:

AES
CONSULTING ENGINEERS

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TABLE OF CONTENTS

I. INTRODUCTION 2

II. THE PROJECT TEAM 3

III. HISTORICAL CONTEXT AND PLANNING CONSIDERATIONS 5

IV. ANALYSIS OF IMPACTS TO PUBLIC FACILITIES AND SERVICES 6
- A. Public Water Facilities 6
- B Public Sewer Facilities 6
- C. Fire Protection and Emergency Medical Services 7
- D. Solid Waste 7
- E. Utility Service Providers 7

V. ANALYSIS OF STORMWATER MANAGEMENT. 8

VI. ENVIRONMENTAL AND SITE INVENTORY 9
- A. Topography 9
- B Soils 9
- C. Surface Water 10
- D. Floodplains and Wetlands 10
- E. Vegetation 10
- F. Cultural Resources 10
- G. Environmental Inventory 10

VII. ANALYSIS OF IMPACTS TO TRAFFIC 11

VIII. CONCLUSION 12

I. INTRODUCTION

On behalf of G-Square, Inc.("G-Square") and BCC at Watertower, LLC ("BCC"), AES Consulting Engineers is supporting the Owners/Applicants in their request for a Special Use Permit (SUP) for 4007 Ironbound Road (the "Property"). The Property is bounded by Ironbound Road to the east, Route 784 to the south, Monticello Avenue to the north, and the vacant lands of Mt. Pleasant Baptist Church to the west. The Property is comprised of 1.929 acres of land zoned B-1 with proffers and an approved Master Plan and Design Guidelines.

The purpose and intent of the current SUP is to secure Board of Supervisors approval for a convenience store with gasoline sales/dispensing on the Property. The purpose of this report is to summarize and organize the planning efforts of the project team into a cohesive package for staff review which addresses the pertinent planning issues affecting the property while describing the probable effects of the proposed development upon existing public facilities and services, the environment, the surrounding community and the County.

Project Description

The roughly 1.9 acres of land which is the subject of the current SUP application is predominantly vacant and grassed with the only improvements being a current paved area providing access to the JCSA Monticello Water Storage Facility and a previously abandoned (but not yet demolished) cul-de-sac representing the prior termination of Old Ironbound Road to prevent its intersection with Route 199. The cul-de-sac has been officially replaced by a simple branch turnaround meeting all VDOT standards and requirements and has been accepted by VDOT as part of the secondary road system.

The approximately 0.75 acres of former right-of-way encompassing the cul-de-sac has been officially abandoned by James City County and was deemed surplus by the Virginia Commissioner of Highways. The property was conveyed to G-Square by the Commonwealth of Virginia by Quitclaim Deed dated October 17, 2019 recorded in the Clerk's Office of the Circuit Court for the City of Williamsburg and County of James City as Instrument No.

190017333, as corrected by Quitclaim Deed of Correction from the Commonwealth dated July 7, 2020 recorded in the aforesaid Clerk's Office as Instrument No. 200012127. Moreover, the former VDOT right-of-way property was subsumed into the G-Square parcel by approval and subsequent recordation of the "Plat of Property Line Extinguishment, 4007 Ironbound Road, Owned by G-Square, Inc." on October 8, 2020 as Instrument # 200017183. The expanded G-Square parcel will remain subject to the operational control of BCC under the terms of its long-term land lease with G-Square, Inc.

Vehicular access to the Site from Monticello Avenue is prohibited. Vehicular access to the Site will only be from Old Ironbound Road at two points generally as depicted on the Master Plan. Sidewalks along Ironbound Road and Monticello Avenue will remain and be complemented by connecting sidewalks to and from the development from these roadways as well as a new sidewalk along Old Ironbound Road.

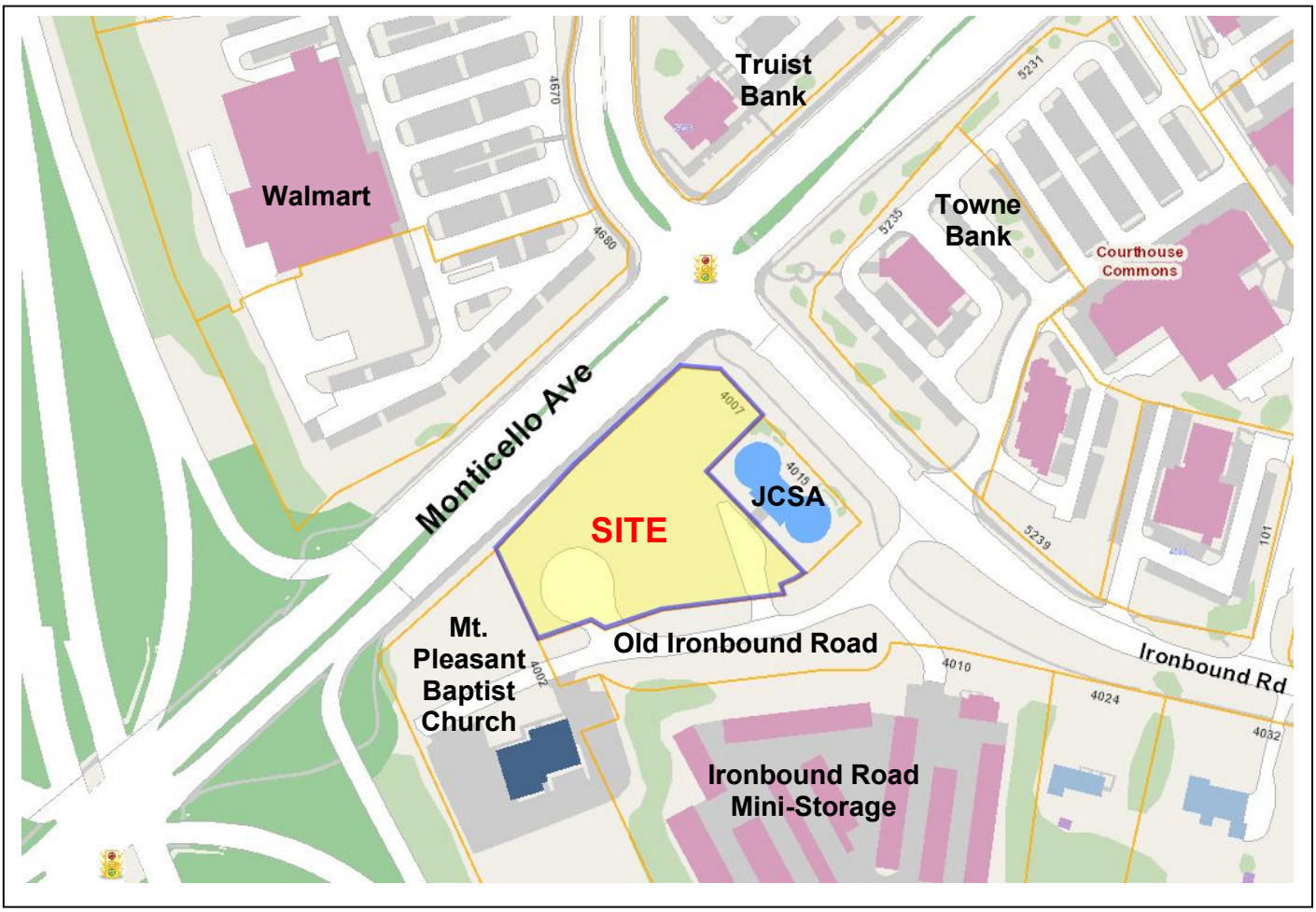
The approved design guidelines ensure that the architectural treatment of the proposed building on the site will complement the buildings and streetscape at Courthouse Commons, the Monticello Ave. corridor and the broader New Town development more generally. Guidelines addressing parking, circulation, landscape treatments, buffers and landscape yards, and architectural treatments are described in the design guidelines previously approved with rezoning Z-18-0006.

II. THE PROJECT TEAM

The following organizations are involved in the planning and development of the Site:

- Owner/Developer: G-Square, Inc./BCC/Bush Construction Corporation
- Legal Counsel: Geddy Harris Frank and Hickman
- Planning: Hopke and Associates
- Engineering: AES Consulting Engineers
- Traffic: DRW Consultants, LLC
- Environmental: Cardno

Exhibit 1 - Context Map



III. HISTORICAL CONTEXT AND PLANNING CONSIDERATIONS

Historical Context

The land subject to this proposed SUP was re-configured from its pre-Route 199 condition to facilitate the extensive roadway and infrastructure improvements planned and implemented in connection with the construction of both Route 199 and Monticello Avenue and the New Town development. Portions of the Site (the former WMBG radio station property) were dedicated for public use nearly 20 years ago to facilitate these important public improvements. Planning and cross-access easements required for the construction and on-going operation of the JCSA Ironbound Water Storage Facility and future development of the G-Square, Inc, property involved significant collaboration and cooperation between JCSA, G-Square, Inc. and Bush Construction Corporation at that time.

During the planning in 2001 and ultimate site plan approval of the project known as “New Town Office Building” on the Site (adjacent to the JSCA water tanks) a 4-story office building with under-building parking was proposed and approved. Over time, the design proved to be economically infeasible as New Town grew quickly, developing with surface parking and aided by parking reduction modifications justified by the new urbanist, neo-traditional design of the New Town Master Plan placing this compact property at a competitive disadvantage as an office use. Multiple phases of New Town, the new Williamsburg-James City County Courthouse, the New Town United Methodist Church, the twin vision and cardiovascular clinics, the Post Office, Settlers Market and Courthouse Commons have since together created a significant commercial corridor.

In March of 2019, the Board of Supervisors unanimously approved a conditional rezoning of the property which rezoning (i) restricted certain uses otherwise permitted by the B-1 Zoning of the property, (ii) included approval of a Master Plan for the future development of the property and (iii) included design guidelines for the future development of the property. Together, these conditions of the recent rezoning set the stage for the proposal now under consideration.

Planning Considerations

The site lies within the Primary Service Area (PSA) of the County. “The Primary Service Area defines areas presently served by public water and sewer, and high levels of other public services, as well as areas expected to receive such services over the next 20 years.” Water and sewer services are at or adjacent to the site; there is ample capacity in these systems to support this project.

The Comprehensive Plan of James City County designates the site as Mixed Use within the overall area described as New Town. This mixed-use area is to be comprised of commercial, office, limited industrial uses with complementary residential. As with other areas of the New Town Mixed Use area, the Property is guided by a master plan, design guidelines and proffers. While not part of the original land plan for New Town, the Property presents prominently along the entry to the corridor coming from Route 199 leading to the New Town development. The prior rezoning positioned the Property to be developed in conjunction with prior corridor development, providing for a prominent tenant to occupy the space. The proposed convenience store has been guided by

the approved Master Plan, Proffers, architectural standards and design guidelines assuring compatibility with adjacent land uses, particularly those along Monticello Avenue.

IV. ANALYSIS OF EXISTING PUBLIC FACILITIES AND SERVICES

A. PUBLIC WATER AND SEWER FACILITIES

The Property addressed in this Community Impact Statement is located within the Primary Service Area (PSA) of James City County and the James City Service Authority, where public water and sanitary sewer services are generally available, and the use of these public facilities is required. Public water service is available through a JCSA 16-inch water main located along Monticello Avenue which intersects with a 12-inch water main along Ironbound Road and through the property.

Previous water modeling of the existing 16" water distribution main has demonstrated ample capacity to provide for the water demands for the proposed use on the Property with no discernable impact to the system. Additionally, the water and sewage demand from the proposed convenience store (well below 10,000 gallons per day) is less than the previously approved New Town Office Building.

B. PUBLIC SEWER FACILITIES

For this site, public sewer service is currently available from a JCSA owned force main and a nearby downstream gravity sewer system. Proposed development of the Property will utilize an on-site privately maintained sewage grinder pump station as was previously proposed and approved for the New Town Office Building on this Property.

Previous sewer modeling of the existing force main and gravity system has been completed by AES. Future development will, as is always the case, need to verify again at site plan stage that sufficient capacity exists within the force main and/or provide upgrades to the downstream force main system to ensure there are no impacts to existing users on the system.

C. FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES (EMS)

There are currently five fire stations providing fire protection and Emergency Medical Services (EMS) to James City County. The closest fire station to the subject site is Station #3 at 5077 John Tyler Highway, approximately 2.3 miles southwest of this project. The next closest fire station to the subject site is Station #5 located at 3201 Monticello Avenue, approximately 3.8 miles west of this project. These two fire stations, and the emergency medical staff available at these stations, will provide a more than adequate response to potential emergencies. In addition, through cooperative agreements between Williamsburg, James City County, and York County, other stations may also be utilized for larger emergencies at the site.

D. SOLID WASTE

The property will generate solid waste that will require collection and disposal to ensure a safe and healthful environment. Collection of solid waste will be by private contract with reputable haulers acting in accordance with local health standards. This waste will be transported to the James City County Solid Waste transfer station.

E. UTILITY SERVICE PROVIDERS

Virginia Natural Gas (VNG), Dominion Virginia Power, Cox Communications and Verizon Communications provide, respectively, natural gas, electricity, and communication services to this area. The current policy of these utility service providers is to extend service to the development at no cost to the developer when positive revenue is identified. With new land development these utility providers are required to place all new utility service underground.

V. ANALYSIS OF STORMWATER MANAGEMENT

A preliminary stormwater management analysis and design has been performed as a component of the planning for this proposed project. The purpose of the stormwater management plan is to address the Department of Environmental Quality (DEQ) requirements for water quality and quantity control of flow generated by the proposed development. An underground storage

system is to be utilized to detain and release stormwater at flows permitted by DEQ requirements. The underground storage system allows for more efficient utilization of space on-site, ease of maintenance, prevents the accumulation of trash and debris and eliminates standing water as habitat for mosquitos. The Stormwater Master Plan included with this application is only conceptual and has been designed with existing site conditions known at the present time. As such, the specifics of design, including size, materials, volume provided, and locations are subject to change in the final construction plans.

The water quality requirements of DEQ will be addressed through the Virginia Runoff Reduction Method (VRRM). Preliminary estimates suggest around 2.5 pounds/year of phosphorus pollutant removal required by the VRRM. This pollutant load will be removed by either underground infiltration (if applicable), or nutrient credit purchase from an approved nutrient bank.

In evaluating stormwater management solutions on the subject site, unique site characteristics were considered. Preliminary site investigation identified the following site characteristics to be considered in stormwater management planning:

- The project is situated within the Mill Creek Watershed of the James River.
- The property is currently cleared and vacant, but with an existing asphalt cul-de-sac turnaround and paved entrance to the existing JCSA water storage facility.
- Existing Monticello Avenue roadway drainage discharging uncontrolled through the site.
- The soils in the vicinity of the site have previously been found to be conducive to infiltration. If it can be demonstrated here, the underground storage system can utilize infiltration to provide even greater water quality and quantity control.

The stormwater management plan proposed for this site will protect overall downstream water quality, help preserve the natural hydrology of the watershed, and reduce the likelihood of the existing Monticello Avenue roadway drainage to cause downstream erosion to receiving channels through maintaining post-developed flows at or below pre-developed flows through on-site detention, and if feasible, through infiltration.

VI. ENVIRONMENTAL AND SITE INVENTORY

Description of Existing Conditions

The Property is relatively flat with elevations ranging from a high of 107 near Monticello Avenue to a low of 92 within the Old Ironbound Road (Route 784) roadside ditch along the southern portions of the site. A 48" drainage pipe discharges across the site via an open drainage ditch which extends downstream and under Route 784 and then through the Ironbound Road Mini-storage Site. The Property is vacant, with managed grass and a paved cul-de-sac. The property is bounded by Monticello Avenue, Ironbound Road, Old Ironbound Road (Route 784) and vacant land (Mt. Pleasant Baptist Church). The site is currently accessed via Old Ironbound Road (Route 784). Properties to the east are zoned B-1 (JCSA Water Storage Facility) and M-1 (Courthouse Commons); properties to the south are zoned B-1 (Ironbound Road Mini-Storage) and R-2 (Mt. Pleasant Baptist Church and graveyard), the parcel to the west is zoned B-1 (vacant land of Mt. Pleasant Baptist Church); and properties to the north, across Monticello Avenue, are zoned MU Mixed Use.

A. TOPOGRAPHY

The site has been graded relatively flat with the exception of a 7 to 10-ft downslope along Monticello Avenue, which is protected by a 30-ft slope maintenance easement for perpetual VDOT maintenance.

B. SOILS

The Soil Survey of James City County, Virginia (USDA 1985) maps a few different soil types within this site. The undeveloped areas of the site are composed primarily of Kempsville and Norfolk Fine Sandy Loam which both are in hydrologic group B and are mostly low to moderate erodibility. Shrink-swell potential is low in all soils mapped within the site boundary, and the erosion hazard potential is slight in all soils. Soils in this vicinity are often suitable for infiltration practices; further assessment will be needed at site plan stage to verify opportunities for infiltration.

C. SURFACE WATER

There is an open-air drainage ditch associated with this site, located along Ironbound Road and ringing the cul-de-sac. The remainder of the site drains by overland flow across a gently sloping, well stabilized grassy surface.

D. FLOODPLAINS and WETLANDS

According to Flood Insurance Rate Map (FIRM) 51095C0120C, for James City County, Virginia there are no floodplains located on this site. Review of the National Wetlands Inventory (NWI) mapping and familiarity with this site for the New Town Office Building site plan indicates the lack of wetlands on the site. The site has been maintained as managed grass since the initial grading and collaboration with the JCSA for its water storage facility.

E. VEGETATION

There is no significant vegetation on these properties.

F. CULTURAL RESOURCES

Because of the extensive disturbance to all the property through (i) the construction of the radio station, (ii) later demolition and removal of the radio station, (iii) grading and construction of the JCSA water tanks and appurtenant accessways, utilities and drainage and (iv) the construction of Route 199 and Monticello Avenue as well as the prior tillage of the plow zone in the former Casey property that had been farmed for decades, Staff previously agreed during the rezoning that a cultural resources investigation is not warranted.

G. Environmental Inventory

The subject property is currently a developed and/or previously developed site and as such there are no environmentally sensitive resources present on the subject property.

VII. ANALYSIS OF IMPACTS TO TRAFFIC

A Traffic Impact Analysis (TIA) has been prepared after substantial review of technical content with the review agencies, including James City County Staff, the County's consultant Kimley-Horn & Associates and VDOT. A discrete element in this study is extensive calibration of traffic count data to account for COVID19 conditions since most traffic counts were conducted in 2021. In recognition of the significant existing traffic on Monticello Avenue, the Applicant worked extensively and closely with County Staff and the review agencies and agreed to trip generation requirements for this project that are appreciably higher than that required and/or approved for any other convenience store with gas developments in the region. All other projects in the region have used vehicle fueling positions (VFP) as the determinant of trip generation. For this project, a blended trip generation rate taking into account VFPs and building square footage was used, resulting in very conservative trip generation rates that are 34% higher in the AM and 26% higher in the PM peak hours than would have obtained if trip generation was consistent with all other previously approved projects.

The TIA has identified the following improvements to be constructed with the proposed development and included in the SUP conditions for this proposal:

1. Third lane of pavement on northbound Ironbound Road from the Route 784 (the Ironbound Road cul-de-sac)/Courthouse Commons intersection to Monticello Avenue with pavement transition south of the Route 784/Courthouse Commons intersection to Monticello Avenue.
2. Southbound right turn lane on Ironbound Road at the Route 784/Courthouse Commons intersection, consisting of 100 feet of full width lane and a 100-foot taper.
3. Restriping of Ironbound Road for the above referenced pavement additions.
4. Modifications to northbound traffic signal loop detectors and related equipment for signalized traffic control on northbound Ironbound Road at Monticello Avenue.
5. Adjustments to curbs, sidewalks and other public road structures and equipment necessary to accommodate the lane additions cited above.

Through the installation of these improvements, the Applicant will fully mitigate any traffic impacts to the surrounding road network and maintain acceptable levels of service in the corridor.

In addition, the Applicant has committed to replacing the overflow parking that Mt. Pleasant Baptist Church has for years relied on within the former VDOT cul-de-sac on Route 784 with a new overflow parking area on church property located between Monticello Avenue and the Church's main entrance. That overflow parking can be provided as a matter of right and is therefore not included as a component of this SUP. Through this new parking area, the church will enjoy all-weather overflow parking closer and more conveniently located to the Church than the former cul-de-sac afforded.

VIII. CONCLUSION

In summary, this request for a Special Use Permit is consistent with and implements the conditional zoning approved through case Z-18-0006, is complementary to surrounding land uses and zoning and is in conformance with the James City County Comprehensive Plan. This proposed development will provide additional benefits to the community as well, including:

- An ideal location for convenience retail and fuel sales east of Rte. 199 (where none exists now), thereby providing a more accessible location for residents and customers of New Town and motorists coming from Rte. 199 into the City via Monticello Avenue who would otherwise travel west across Rte. 199, where traffic counts are appreciably higher and traffic congestion and delays are notably longer.
- Transportation improvements to the area road network that not only mitigate this proposal's traffic but also provide additional capacity for future development not associated with this property.
- Architectural guidelines that ensure complementary vertical development with Courthouse Commons, the Ironbound Water Storage Facility and the surrounding New Town area.
- A plan which accentuates the Monticello Avenue streetscape through context sensitive building and parking placement, sidewalk interconnectivity, street trees and other complimentary landscaping.
- A collaboration between local and state government, private development and the

faith community of Mt. Pleasant Baptist Church that will alleviate longstanding overflow parking issues experienced by the church.

- Fulfillment of a decades-old partnership and collaboration between the JCSA and the private sector which made possible the construction and on-going operation of the Ironbound Water Storage Facility with complementary commercial development that affords meaningful economic development with a positive fiscal impact for the County.
- The re-purposing of private land that was long ago taken for public need (Rte. 199 and Monticello Avenue construction) back into private ownership with a necessary business use providing needed employment opportunities.

Traffic Impact Analysis For The Proposed Special Use Permit For Ironbound Crossing

JAMES CITY COUNTY, VIRGINIA

For:
The Bush Companies

By:
DRW Consultants, LLC
Midlothian, VA

November 23, 2021

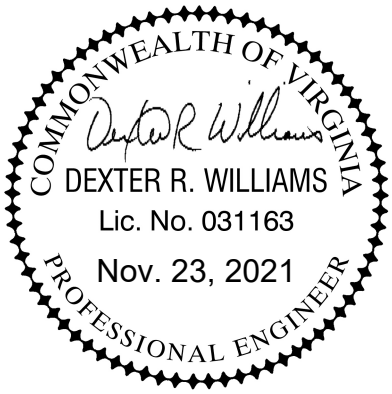


TABLE OF CONTENTS

REPORT TEXT	Page
Introduction	1
Traffic Study Scope, Traffic Data And COVID	2
Traffic Data Collection	3
2021 Traffic Count Balance	4
Daily Traffic Trends	4
2021 COVID Adjustment Factors	5
2021 Counts With COVID Adjustment	6
Synchro/SimTraffic Analysis Protocols	6
2021 Existing Conditions Analysis	8
2023 Background Traffic	12
2023 Forecast And Analysis – Existing Zoning	14
2023 Forecast And Analysis – Proposed SUP And Improvements To Ironbound Road	16
Summary And Conclusions	20

REPORT EXHIBITS	Number
Regional And Area Maps	1
Proposed Site Layout And Traffic Count/Study Locations	2
Existing Roadway Conditions	2a
2021 Counts Without Balance	3
2021 Counts Adjustment Factors.	3a
2021 Counts With Balance	4
Monticello Avenue Daily Traffic Counts And Trends	5
Monticello Avenue And Ironbound Road Daily Traffic Counts And Trends	6
Ironbound Road/Courthouse Commons/Ironbound Cul-De-Sac 2017-2021 Calibration	7
Monticello Avenue At WindsorMeade Way And Rt. 199 2016-2021 Calibration	8
First 2021 Count Adjustment	9
Final 2021 Count Adjustment	10
2023 Background Traffic – Growth Factor Only	11
New Town Sections 7, 8, 8 Remaining Residential Trip Generation And Distribution	12
New Town Sections 7, 8, 8 Remaining Residential Trip Assignments	13
2023 Background Traffic With New Town Sections 7, 8, 8 Residential	14
Ironbound Crossing Existing Zoning Trip Generation And Distribution	15
Ironbound Crossing Existing Zoning Trip Assignments	16
2023 Traffic Forecast Ironbound Crossing Existing Zoning	17
Ironbound Crossing Proposed Zoning Trip Generation And Distribution	18
Ironbound Crossing Proposed Zoning Trip Assignments	19
2023 Traffic Forecast Ironbound Crossing Proposed Zoning	20
Ironbound Road Improvements For Access To Proposed SUP	21

REPORT TEXT

INTRODUCTION

This traffic impact analysis (TIA) has been prepared to address the effects of a requested Special Use Permit (SUP) for the Ironbound Crossing property to allow a convenience store with gasoline sales. The upper section of the Exhibit 1 shows the site location in the Hampton Roads region.

Ironbound Crossing was rezoned by James City County (JCC) in March 2019 and included an agreement with VDOT to reconfigure the cul de sac built on Ironbound Road Rt. 784 (hereinafter Ironbound cul-de-sac) in conjunction with Rt. 199 and Monticello Avenue. The aerial photo on the lower section of Exhibit 1 depicts the VDOT offset bulb style of cul-de-sac that was originally constructed. An agreement was reached with VDOT Right Of Way shown on the lower sectionof Exhibit 1. That right of way has been transferred by VDOT and a branch turnaround style design has been constructed for the VDOT public road cul-de-sac.

The JCC zoning in 2019 integrated VDOT right of way and G Square Inc property shown on Exhibit 1 as one development parcel by means rezoning and proffers that control the development ofboth parcels and the recordation of a Plat of Property Line Extinguishment via Instrument #200017183; the assemblage is referred to as Ironbound Crossing, is owned by G-Square, Inc. and controlled by Bush ConstructionCorporation (Bush) through a long-term land lease.

The 2019 rezoning to B-1 with proffers included a limitation on development to 99 trips per peak hour or any uses with 100 trips per hour or more require a SUP. The convenience store with gas land use requires an SUP by JCC, which in turn also requires a TIA given trip generation for the proposed use.

The upper section of Exhibit 2 shows the conceptual plan for a Wawa convenience store with gas prepared by AES Consulting Engineers for this project. The proposed site consists of a 6,049 square foot building with 12 vehicle fueling positions (VFPs).

As shown on the lower section of Exhibit 1, the site fronts on Monticello Avenue, Ironbound Road, and the Ironbound Road cul-de-sac (marked stub on Exhibit 1). The site has access only on the Ironbound cul-de-sac with two proposed entrances. Access to the Ironbound Road Water Storage Facility at the corner of Ironbound Road/Ironbound cul-de-sac is provided across the property now and will continue with redevelopment of the site.

The Ironbound cul-de-sac is a local street. The proposed entrance on the Ironbound cul-de-sac nearest Ironbound Road has a curb tangent spacing (curb radius to curb radius) of approximately 135 feet. Curb tangent spacing between the two proposed entrances is approximately 70 feet. The proposed curb tangent entrance spacing exceeds VDOT minimum spacing of 50 feet on local streets.

The stop-sign controlled intersection of Ironbound Road/Ironbound cul-de-sac/Courthouse Commons entrance is the primary gateway to the site (intersection 1 on the lower section of Exhibit

2). The signalized intersection at Monticello Avenue/Ironbound Road/Casey Boulevard (intersection 2 on the lower section of Exhibit 2) provides regional access for to the site.

TRAFFIC STUDY SCOPE, TRAFFIC DATA AND COVID

This TIA has been prepared after substantial review of technical content with review agencies (JCC consultant [Kimley-Horn & Associates] and VDOT). This review began in March 2021 with an initial focus on site trip generation and alternative independent variables (building square footage versus vehicle fueling positions [VFPs]) pass by trip rates. A memo dated March 16, 2021 on this subject was presented to JCC and VDOT. In response, review agencies that the average of square footage and VFP values be used for this site. It should be noted this approach is appreciably higher (34% AM, 26% PM) than that required and/or approved for identical convenience store with gas building size developments in the region.

The first proposed TIA workscope was presented to JCC and VDOT in a memo dated March 31, 2021. After comments from JCC and VDOT, a revised TIA workscope dated May 4, 2021 was prepared to address those comments (see Appendix Exhibit O series for May 4, 2021 workscope). This TIA has been prepared in general accordance with that workscope.

The social response to the COVID pandemic has resulted in diminished traffic counts beginning in 2020. To address this situation, new traffic counts for this study have been checked against previous counts to identify any diminishment in the overall trend for traffic counts in the area. This process for adjustment of 2021 counts to account for COVID was presented in a memo dated June 15, 2021 to JCC and VDOT (see Appendix Exhibit P series for June 15, 2021 memo). This memo was reviewed by JCC and VDOT and is incorporated into this study and explained in the following sections on traffic data collection, 2021 traffic count balance, daily traffic trends, 2021 COVID adjustment factors and 2021 counts with COVID adjustment factors.

In addition to the workscope and background traffic review, a prior traffic study was submitted with revision date Sept. 9, 2021 and was reviewed by VDOT and JCC. This study has been prepared in accordance with the workscope, background traffic forecast, and the 48 comments received from VDOT and JCC on the Sept. 9, 2021 traffic study.

TRAFFIC DATA COLLECTION

Exhibit 2 shows the locations for peak hour traffic counts and Synchro traffic model analysis developed through agency review:

1. Rt. 615 Ironbound Road/Rt. 784 Ironbound Road cul-de-sac/Courthouse Commons Entrance
2. Monticello Avenue/Ironbound Road/Casey Boulevard
3. Westbound Monticello Avenue ramp to northbound Rt. 199
4. Northbound Rt. 199 ramp to eastbound Monticello Avenue
5. Monticello Avenue/ramps to and from Rt. 199 north and south at signalized intersection
6. Southbound Rt. 199 ramp to westbound Monticello Avenue.
7. Eastbound Monticello Avenue ramp to southbound Rt. 199
8. Monticello Avenue/WindsorMeade Way.
9. Monticello Avenue/Settler's Market Boulevard/Courthouse Commons
10. Eastbound Monticello Avenue traffic maneuvers from Location 4 Rt. 199 northbound exit ramp to Location 2 Monticello Avenue/Ironbound Road/Casey Boulevard

Traffic analysis results are reported in this study for locations 1 through 7. Locations 8, 9 and 10 are included in the forecast and analysis for modeling purposes per the workscope.

Due to evolving process of traffic study scope review, new 2021 counts for this study were conducted at different times. Peak hour counts were conducted as follows:

- AM and PM on Tuesday April 13, 2021, Locations 1, 2, 3, 4 and 5 (Appendix Exhibits A through D series)
- AM and PM on Wednesday May 19, 2021, at Location 9 (Appendix Exhibit E series).
- AM on July 21, 2021, at Locations 6, 7 and 8 (Appendix Exhibits H1 and H2 series).
- PM counts at Locations 6, 7 and 8 are derived from a previous traffic study per workscope (Monticello Commons TIA by Ramey Kemp & Assoc., October 2017, Appendix Exhibits H3 and H4 series). For the Locations 6 and 7 Rt. 199 ramp volumes, tabulated counts and truck percentages were not provided. Ramp volumes from Appendix Exhibit H3 and truck percentages assumed to be 3%.

In addition to counts at locations 1 through 9, AM and PM peak hour videotapes recorded at Location 10 on Wednesday May 19, 2021, were reviewed to derive percentage splits for various traffic maneuvers on eastbound Monticello Avenue between the northbound off ramp from Rt. 199 and the Casey Boulevard/Ironbound Road intersection (Appendix Exhibit F).

Exhibit 2a shows existing roadway conditions: lane alignments, storage lane length and taper, signalized intersection control and stop controlled approaches to intersections.

2021 TRAFFIC COUNT BALANCE

Exhibit 3 shows the 2021 AM and PM peak hour counts on the analysis road network without balance. The April 13 counts (in yellow) are close to balance between intersections, but the May 19 counts (in green) are higher than the April 13 counts, particularly for the PM peak hour. The July 21 AM counts are slightly higher than the April 13 counts. Ratios of May 19 counts to April 13 counts on Monticello Avenue (between Casey Blvd. and Settlers Market) are:

- AM westbound: 1.06
- AM eastbound: 1.02
- PM westbound: 1.09
- PM eastbound: 1.13

Growth factors for increasing April 13 counts and July 21 counts to May 19 levels are shown on Exhibit 3a. For the section of Monticello between Casey Boulevard and Settlers Market, the growth factors above were applied to Casey Boulevard/Ironbound movements to balance with Settlers Market. For the other section of Monticello Avenue, growth factors were adjusted slightly to account for imbalance in counts between intersections. For the AM peak hour, growth factors thus ranged from 1.01 to 1.06. For the PM peak hour growth factors thus ranged from 1.09 to 1.13. Exhibit 4 shows 2021 counts balanced with the April 13 counts increased to May 19 levels.

DAILY TRAFFIC TRENDS

Exhibits 5 and 6 show VDOT daily traffic counts for the last ten published years and trends for Monticello and Ironbound Roads as follows:

- Exhibit 5, upper section: Monticello Avenue from Rt. 199 to News Road. The 2010 and 2011 counts are statistical anomalies and are not used in the trend forecast. Thereis an increasing trend overall based on 2012 through 2019 counts, with the following growth factors:
  - 2012 to 2019: 1.05
  - 2016 to 2021: 1.04
  - 2017 to 2021: 1.03
  - 2021 to 2023: 1.01
- Exhibit 5, lower section: Monticello Avenue from Ironbound Road to Compton Drive(east of New Town through College Woods). The counts here show a declining trendand don't provide guidance for growth factors.
- Exhibit 6, upper section: Monticello Avenue from Rt. 199 to Ironbound Road. These counts show that the count location must have changed over time. There is no historicalchange in traffic demand in the area to increase daily traffic from 23,000 in 2015 to 32,000 in 2016. The two sets of counts here show a declining trend and don't provide guidance for growth factors.
- Exhibit 6, lower section: Ironbound Road from Monticello Avenue to Strawberry Plains Road (Old Ironbound Road including access to Ironbound Cul-de-sac and proposed site).

These counts show that count location may have changed over time ormay be just an anomaly of data collection. Using all of the counts, there is an increasing trend overall, with the following growth factors:

- 2010 to 2019: 1.10
- 2016 to 2021: 1.05
- 2017 to 2021: 1.04
- 2021 to 2023: 1.02

2021 COVID ADJUSTMENT FACTORS

As discussed and agreed, previous counts at location 1 (Ironbound Road/Ironbound Cul-de-sac/Courthouse Commons) from 2017 and at location 5 (Monticello Avenue/Rt. 199 ramps signalized intersection) from 2016 are used to calibrate current counts with pre-COVID conditions.

Exhibit 7 shows COVID count calibration for location 1 (Ironbound Road/Ironbound Cul-de-sac/Courthouse Commons) as follows:

- Top row: 2017 peak hour counts.
- Second row: 2021 calibration: 2017 counts increased by 1.04 factor to 2021 levels.
- Third row: balanced counts from Exhibit 4.
- Fourth row: ratio of 2021 balanced counts to 2021 COVID calibration from 2017 counts.

The AM peak hour shows that the 2021 balanced counts are greater than the calibration counts from 2017 by a 1.22 ratio (22% greater). Much of this increase is driven by traffic on the Ironbound Cul-de-sac (food distribution activity at Mt. Pleasant Baptist Church) and the Courthouse Commons entrance.

The PM peak hour shows that the 2021 balanced counts are less than the calibration counts from 2017 by a 0.91 ratio (9% less). Much of this decrease is driven by traffic on the Courthouse Commons entrance.

Exhibit 8 shows COVID count calibration for locations 5 through 8 (Monticello Avenue fromRt. 199 Ramp signal to WindsorMeade Way) as follows:

- Top row: 2016 peak hour counts.
- Second row: 2021 calibration: 2016 counts increased by 1.05 factor to 2021 levels.
- Third row: balanced counts from Exhibit 4. Only corresponding counts to the 2016 counts area shown (six turning movements) at the Rt. 199 signal. No 2021 counts were done at WindsorMeade Way.
- Fourth row: ratio of 2021 balanced counts to 2021 COVID calibration from 2016 counts.

The PM peak hour shows that the 2021 balanced counts for six movements at Rt. 199/Monticello

Avenue are less than the calibration counts from 2017 by a 0.92 ratio (8% less).This 0.92 ratio is consistent with the 0.91 ratio for location 1 (Ironbound Road/Ironbound Cul-de-sac/Courthouse Commons).

2021 COUNTS WITH COVID ADJUSTMENT

Exhibit 9 shows the first adjustment to 2021 PM peak hour counts to account for COVID as follows:

- For locations 1 (Ironbound Road/Ironbound Cul-de-sac/Courthouse Commons) and 5 (Rt. 199/Monticello Avenue signal), the higher values from the 2016/2017 counts calibrated to 2021 are substituted to 2021 balanced counts (in yellow).
- For the movements west of the Rt. 199/Monticello signal (Rt. 199 ramps and WindsorMeade Way), the 2016 counts calibrated to 2021 are added.

Exhibit 10 shows the final adjustment to 2021 PM peak hour counts: all movements on Monticello Avenue at Casey Blvd./Ironbound Road and at Settler's Market/Courthouse Commons (yellow) are increased to balance with COVID calibration counts.

2021 AM counts are unadjusted because the only pre-COVID counts at location 1 (Ironbound Road/Ironbound Cul-de-sac/Courthouse Commons) are smaller than the 2021 counts.

SYNCHRO/SIMTRAFFIC ANALYSIS PROTOCOLS

The Monticello Avenue corridor operates under Adaptive Traffic Signal Control. Analysis protocols for Synchro/SimTraffic analysis of the Monticello Avenue corridor and Ironbound Road were developed as following:

- AM and PM peak hour traffic signal cycle lengths of 135 seconds are used based on cycle length record provided by VDOT Traffic Operations (see Appendix Exhibit Q5)
- Clearance intervals (traffic signal yellow and red times for each phase) were provided by VDOT and are presented in technical appendix as follows:
    - Monticello/WindsorMeade: Appendix Exhibit Q1 series
    - Monticello/Rt. 199: Appendix Exhibit Q2 series
    - Monticello/Casey Blvd./Ironbound Road: Appendix Exhibit Q3 series
    - Monticello/Settlers Market/Courthouse Commons: Appendix Exhibit Q4 series.

Minimum green times were taken from previous Monticello Avenue Synchro models. Following are minimum green times for Monticello/WindsorMeade, Monticello/Casey Blvd./Ironbound Road and Monticello/Settlers Market/Courthouse Commons:

- Eastbound and westbound left turns: 5 seconds
- Eastbound and westbound through movements: 15 seconds
- Northbound and southbound approaches: 7 seconds

At the Monticello/Rt. 199 signal, eastbound and westbound minimum green times are 8 seconds and

northbound and southbound minimum green times are 10 seconds which reflect the larger intersection area at Monticello/Rt. 199.

With these minimum settings and fixed cycle length, intersection offsets on the network were optimized along with optimized green time splits at intersections for each scenario.

Other protocols applied to the traffic forecast include the following:

- Truck percentages (%T) for turning movements based on 2021 counts and included in Technical Appendices (exception: PM peak hour counts at Monticello/WindsorMeade and eastbound and southbound right turns at Monticello/Rt. 199 taken from Ramey Kemp Monticello Commons had zero %T, so 1% trucks used for through movements at intersection and on eastbound and southbound right turns at Monticello/Rt. 199 consistent with 1% values common at other locations.)
- Synchro turn lane storage = length of full width lane and one-half of taper
- Peak hour factor for overall intersection applied to all movements with existing peak hour factor for existing traffic analysis.
- Peak hour factor of 0.92 for overall intersection for all forecasts or existing peak hour factor if greater than 0.92
- Lost time adjustment to net 4 seconds lost time on each maneuver as done with Ramey Kemp Monticello Commons study dated October 2017
- Monticello Avenue and Ironbound Road link speed 45 mph as posted, 25 mph on other street/entrance approaches, 35 mph on Rt. 199 links
- Link origin-destination (O-D) volumes on the eastbound Monticello Avenue approach to Casey Boulevard/Ironbound Road adjusted as much as software will allow for movement from northbound Rt. 199 ramp to left turn at Casey Boulevard/Ironbound Road to match observed values. O-D data for eastbound Monticello through movement at Rt. 199 and southbound left turn on Rt. 199 ramp at Monticello Avenue were specified in workscope and were videotaped.
- For all Synchro, traffic signal offsets (coordination settings between signals on major corridor) and individual intersections were optimized. This is the most objective approach to comparative traffic signal analysis for future conditions.
- 10 SimTraffic runs (simulations) with average queuing values reported (5 runs were used in previous Sept. 9, 2021 study).

For the most part, all of these protocols were followed in the Sept. 9, 2021 study with some adjustments based on review agency comments. A significant change from the previous report is use of a Synchro model provided by VDOT that changed that lane configuration at Monticello Avenue/Rt. 199 which has required some degree of calibration as explained below under existing conditions analysis.

2021 EXISTING CONDITIONS ANALYSIS

Following are level of service (LOS) and queuing results for locations 1, 2 and 5 for 2021 adjusted traffic conditions for peak hour traffic shown on Exhibit 10 and using the Synchro model provided by VDOT. A key element of this model is a 250-foot median width northbound and southbound at Monticello/Rt. 199 as provided by VDOT with presents in the following table.

TABLE 1-1 Monticello Ave/Rt. 199							
SIGNALIZED LOS And Seconds Delay					Maximum Queues		
	AM		PM		Storage	SimTraffic Q&B	
Overall	C	22.1	C	23.2		AM	PM
EBL2	D	45.3	E	61.4	445	214	445
EBT2	B	13.8	B	12.7		248	823
EBR	C	22.7	A	0.3	390	0	
WBL2	D	45.6	E	56.7	455	75	455
WBT2	A	8.3	B	19.5		187	735
WBR	B	10.2	A	0.3		0	584
NBL2	E	55.3	D	52.8	575	220	515
NBR	A	0.2	A	0.2			271
SBL2	D	54.6	D	43.5	480	49	26
SBR	A	0.4	A	0.7			0

SimTraffic queue shown is maximum report value for multi-lane groups

At the Monticello Avenue/Rt. 199 signalized intersection, there is overall LOS C in the AM peak hour and LOS C in the PM peak hour. SimTraffic maximum queues results for the AM peak hour are well within storage for auxiliary lanes. Queues in the PM peak hour are more problematic: westbound and eastbound left turns reach maximum storage and westbound and eastbound through are spilling back to adjacent intersections. Results were initially more excessive, and the results above are a result of attempting to calibrate/reduce queuing by reducing headway from 1.0 to 0.75. This headway adjustment was made after review with VDOT (See Appendix Exhibits J1 and J2 for LOS reports and L1 and L2 for queuing reports).

Because these queues are in excess of general observations, videotapes of PM peak hour traffic (4 PM to 5:45 PM, May 19, 2021) were observed for maximum queueing on westbound Monticello Avenue at Rt. 199 with the following results in comparison to Table 1-1:

- Westbound left: ~ 225 feet maximum queue in a single lane (two observations) vs. SimTraffic 455 feet in right side lane shown above and 253 feet in left side lane output
- Westbound through: ~ 600 feet queue in the right side through lane without substantial queue in left side lane (single observation) vs. SimTraffic 735 feet in right side lane shown above and 726 feet in left side lane in output.
- Westbound right: no observed queue versus 584 feet queue in SimTraffic.

After the headway adjustment calibration effort and the higher turning speed (25 mph) already used for left turns at Monticello/Rt. 199, the 250-foot median width (northbound and southbound) at

Monticello/Rt.199 as presented in the VDOT model was reduced to 200 feet in the PM peak hour with the results in the following table:

TABLE 1-1a Monticello Ave/Rt. 199							
SIGNALIZED LOS And Seconds Delay					Maximum Queues		
	AM		PM		Storage	SimTraffic Q&B	
Overall	C	22.1	C	22.8		AM	PM
EBL2	D	45.3	E	57.8	445	214	387
EBT2	B	13.8	B	13.2		248	336
EBR	C	22.7	A	0.3	390	0	0
WBL2	D	45.6	E	56.4	455	75	380
WBT2	A	8.3	B	19.2		187	587
WBR	B	10.2	A	0.3		0	0
NBL2	E	55.3	D	52.8	575	220	431
NBR	A	0.2	A	0.2		0	0
SBL2	D	54.6	D	43.5	480	49	66
SBR	A	0.4	A	0.7		0	0

SimTraffic queue shown is maximum report value for multi-lane groups

The westbound left turn is still in excess of observed queues (380 feet versus 225 observed), but the westbound through is now closer to the ~600-foot observed queue and the westbound right is now closer to zero. AM values are repeated from Table 1-1. (See Appendix Exhibit J2g and L2g for LOS and queuing in the PM peak hour.)

Regarding results in Table 1-1a, there is overall LOS C at the intersection in both peak hours. Regarding LOS on individual movements at the intersections, the LOS protocol in the report is to optimize traffic flow on Monticello Avenue, which means maximizing green time for the eastbound and westbound. Maximum green time for major street through movements (i.e., maximum capacity and flow on major streets) and minimum green time for minor movements has been an operating principle of traffic engineering as nearly as long as the term traffic engineering has existed and this is how traffic signals are deliberately timed. As a consequence, minor street movements commonly experience LOS E: about one minute of delay. LOS E can result from as little as one car per cycle (i.e., signal turns green for 5 to 7 second minimum green time and there is only one car in the minor lane using all of the cycle green time). LOS E for minor street movements at a signalized intersection, particularly in the peak hour, is in no way a traffic operations failure and is in no way a problem that requires solution.

Regarding queuing results in Table 1-1a, all left turn and right turn lane queues are within the turn lane storage length provided. AM peak hour queues are substantially less than PM values which correlates with the fact that AM peak hour is approximately one-half that of the PM peak hour.

Following are LOS and queuing results for the Monticello/Casey Blvd./Ironbound Road intersection (see Appendix Exhibits J1 and J2g for LOS reports and L1 and L2g for queuing reports):

TABLE 1-2 Mont. Ave./Casey Blvd./Ironbound Road							
SIGNALIZED LOS And Seconds Delay					Maximum Queues		
	AM		PM		Storage	SimTraffic Q&B	
Overall	B	18.5	C	26.2		AM	PM
EBL2	D	52.7	D	40.7	340	134	172
EBT2	A	7.7	B	13.4		344	312
EBR	B	14.5	A	7.7		102	39
WBL	A	5.9	B	13.0	275	29	56
WBT3R	A	8.4	C	20.8		131	315
NBL	E	55.8	E	55.3	255	127	208
NBL/T/R	E	55.7	D	54.7		180	248
SBL/T	E	58.3	E	56.7		80	232
SBR2	D	40.6	D	35.8	265	73	175

SimTraffic queue shown is maximum report value for multi-lane groups

At the Monticello Avenue/Casey Boulevard/Ironbound Road signalized intersection, there is overall LOS B in the AM peak hour and LOS C in the PM peak hour. All queues are within right turn and left turn storage lengths. Of most significance to the proposed Wawa site is the queue on northbound Ironbound Road at Monticello Avenue. Queues on this approach were counted in 2017, 2018 and 2021 (see Appendix Exhibits I1, I2 and I3). As with most results in the AM peak hour, AM peak hour queues are inconsequential compared to PM traffic.

Following are PM peak hour queueing count results:

TABLE 1-2a Northbound Ironbound Queues (Feet) At Monticello Avenue.			
		Left Turn	Left/Thru/Right
Tuesday, April 11, 2017	4 to 5 PM*	200	250
	5 to 6 PM	225	275
Thursday, May 24, 2018	4 to 5 PM*	175	225
	5 to 6 PM	175	275
Tuesday, April 13, 2021	4 to 5 PM*	175	225
	5 to 6 PM	150	200
* Peak Hour Of Intersection Turning Movement Counts			

The SimTraffic queues of 208 feet for the northbound left turn and 248 feet for the northbound left/through/right corroborate well with the values in Table 1-2a: most values range from 175 to 225 feet for the left turn lane and 225 to 275 feet for the left/through/right turn lane.

Following are LOS and queuing results for the Monticello/Casey Blvd./Ironbound Road intersection (see Appendix Exhibits K1 and K2g for LOS reports and L1 and L2g for queuing reports):

TABLE 1-3 Ironbound Rd./Cths. Commons/Cul-de-sac							
UNSIGNALIZED LOS And Seconds Delay					Maximum Queues		
	AM		PM		Storage	SimTraffic Q&B	
Overall						AM	PM
EBL/T/R	B	11.6	C	15.0		59	34
WBL/T/R	A	9.3	B	11.1		42	77
NBL/T/R	A	7.8	A	0.0		22	0
SBL/T/R	A	7.5	A	7.8		37	58

SimTraffic queue shown is maximum report value for multi-lane groups

At the Ironbound Road/Courthouse Commons/Ironbound Cul-de-sac unsignalized intersection the eastbound approach (from the Ironbound cul-de-sac to Ironbound Road) has LOS B in the AM peak hour and LOS C in the PM peak hour, and all other approaches are LOS A or B in both peak hours.

2023 BACKGROUND TRAFFIC

Exhibit 11 shows 2023 background traffic with growth factor only. A 1.02 growth factor for 2021 to 2023 general traffic growth is used. That is the higher 2021-2023 growth factor from the Exhibits 5 and 6 trend analyses.

Inclusion of a traffic forecast for the remaining residential units in New Town Sections 7, 8 and 9 was requested during TIA workscope discussions. Exhibit 12 shows trip generation the remaining residential development in New Town Section 7, 8 and 9. JCC and AES provided the following values for remaining units:

FIGURE 1

JCC GIS July 2021 (total 105)		AES May 2021 (total 109)
SF Detached - 38		SF Detached - 45
SF Attached - 67		SF Attached - 64

The higher JCC value for attached units and the higher AES value for detached units are used for trip generation in Table One on Exhibit 12. All attached units are assumed to be two story units which uses the higher trip generation rates for multifamily low-rise.

Table Two on Exhibit 12 shows trip distribution used in the 2006 traffic study for Sections 7 & 8 of New Town (the 2006 trip distribution and assignment exhibits are included in Appendix Exhibits S1, T3 and U3). The 2006 study had a much wider network for New Town. Trip distribution in Table Two has been aggregated to show assignments to the current TIA network. This trip distribution results in 85% of traffic assigned to Monticello Avenue with 65% to/from the west and 20% to/from the east which is reflective of the clearly larger split to Monticello Avenue west exhibited by existing conditions:

1. Aggregate splits of traffic on Casey Boulevard and Settler's Market Boulevard at Monticello Avenue combined (these streets serve the same aggregate areas).
2. Aggregate splits of traffic for the two entrances to Courthouse
3. Split on Ironbound Road at Monticello Avenue

Exhibit 13 shows trip assignments for the remaining residential units in New Town Sections 7, 8 and 9. Exhibit 14 shows 2023 background traffic with the remaining residential units in New Town Sections 7, 8 and 9.

Following are level of service (LOS) and queuing results for locations 1, 2 and 5 for 2023 background traffic conditions (see Appendix Exhibit series J3, J4, K3, K4, L3 and L4 for LOS and queuing reports):

TABLE 2-1 Monticello Ave/Rt. 199							
SIGNALIZED LOS And Seconds Delay					Maximum Queues		
	AM		PM		Storage	SimTraffic Q&B	
Overall	C	21.7	C	24.0		AM	PM
EBL2	D	44.9	E	58.9	445	231	442
EBT2	B	13.7	B	13.6		235	682
EBR	C	20.4	A	1.5	390	0	0
WBL2	D	46.3	E	56.1	455	89	397
WBT2	A	8.4	B	19.6		190	646
WBR	A	9.3	B	10.5		0	210
NBL2	E	55.3	D	54.0	575	220	482
NBR	A	0.2	A	0.2		0	85
SBL2	D	54.6	D	44.0	480	42	54
SBR	A	0.4	A	0.7		0	0

SimTraffic queue shown is maximum report value for multi-lane groups

At the Monticello Avenue/Rt. 199 signalized intersection, there is overall LOS C in the AM and PM peak hours. All left turn and right turn queues are within storage length.

TABLE 2-2 Mont. Ave./Casey Blvd./Ironbound Road							
SIGNALIZED LOS And Seconds Delay					Maximum Queues		
	AM		PM		Storage	SimTraffic Q&B	
Overall	B	18.0	C	26.5		AM	PM
EBL2	D	52.7	D	41.8	340	126	170
EBT2	A	7.4	B	13.9		285	420
EBR	B	12.9	A	7.9		122	46
WBL	A	7.7	B	15.9	275	35	81
WBT3R	A	6.7	C	21.1		134	370
NBL	E	55.8	E	55.8	255	127	223
NBL/T/R	E	55.6	E	55.2		168	246
SBL/T	E	58.3	E	57.0		82	226
SBR	D	40.6	D	35.8		175	295
SBR	D	40.6	D	35.8	265	82	259

SimTraffic queue shown is maximum report value for multi-lane groups

At the Monticello Avenue/Casey Boulevard/Ironbound Road signalized intersection, there is overall LOS B in the AM peak hour and LOS C in the PM peak hour. All left turn and right turn queues are within storage length.

TABLE 2-3 Ironbound Rd./Cths. Commons/Cul-de-sac							
UNSIGNALIZED LOS And Seconds Delay					Maximum Queues		
	AM		PM		Storage	SimTraffic Q&B	
Overall						AM	PM
EBL/T/R	B	11.6	B	14.7		59	32
WBL/T/R	A	9.3	B	10.9		49	79
NBL/T/R	A	7.8	A	0.0		26	13
SBL/T/R	A	7.5	A	7.8		41	52

SimTraffic queue shown is maximum report value for multi-lane groups

At the Ironbound Road/Courthouse Commons/Ironbound Cul-de-sac unsignalized intersection there is LOS A or B for all approaches in both peak hours.

2023 FORECAST AND ANALYSIS – EXISTING IRONBOUND CROSSING ZONING

As previously noted, the Ironbound Crossing property was rezoned with proffers in 2019. That rezoning has a 99 vehicle per hour trip generation limit that was addressed in a traffic study for that rezoning.

Exhibit 15 shows trip generation and distribution for existing zoning on the Ironbound Crossing property. In Table Two, trip distribution from the 2006 New Town Section 7 and 8 traffic study has been used for the 99 primary trips per peak hour.

Exhibit 16 shows the AM and PM peak hour assignments for Ironbound Crossing with existing zoning. Exhibit 17 shows total 2023 traffic with Ironbound Crossing existing zoning.

Following are level of service (LOS) and queuing results for locations 1, 2 and 5 for 2023 traffic conditions with existing zoning for Ironbound Crossing (see Appendix Exhibit series J5, J6, K5, K6, L5 and L6 for LOS and queuing reports):

TABLE 3-1 Monticello Ave/Rt. 199							
SIGNALIZED LOS And Seconds Delay					Maximum Queues		
	AM		PM		Storage	SimTraffic Q&B	
Overall	C	21.3	C	24.2		AM	PM
EBL2	D	44.9	E	60.9	445	241	441
EBT2	B	14.1	B	13.4		285	790
EBR	B	19.2	A	0.9	390	39	0
WBL2	D	43.2	E	56.9	455	103	427
WBT2	A	6.6	B	19.6		219	596
WBR	A	9.4	B	10.9		0	61
NBL2	E	55.0	D	54.0	575	219	444
NBR	A	0.2	A	0.2		0	0
SBL2	D	54.7	D	44.1	480	54	69
SBR	A	0.4	A	0.7		0	0

SimTraffic queue shown is maximum report value for multi-lane groups

At the Monticello Avenue/Rt. 199 signalized intersection, there is overall LOS C in the AM peak hour and LOS C in the PM peak hour. All left turn and right turn queues are within storage length.

TABLE 3-2 Mont. Ave./Casey Blvd./Ironbound Road							
SIGNALIZED LOS And Seconds Delay					Maximum Queues		
	AM		PM		Storage	SimTraffic Q&B	
Overall	B	19.5	C	28.8		AM	PM
EBL2	D	53.5	D	45.7	340	130	174
EBT2	A	8.3	B	19.4		331	496
EBR	B	15.0	B	13.0		53	51
WBL	A	7.4	B	19.5	275	67	54
WBT3R	A	7.4	B	19.9		148	315
NBL	E	55.6	E	55.6	255	142	248
NBL/T/R	E	55.7	E	55.7		186	292
SBL/T	E	58.4	E	57.6		66	224
SBR	D	40.9	D	39.8		176	332
SBR	D	40.9	D	39.8	265	94	260

SimTraffic queue shown is maximum report value for multi-lane groups

At the Monticello Avenue/Casey Boulevard/Ironbound Road signalized intersection, there is overall LOS B in the AM peak hour and LOS C in the PM peak hour. All left turn and right turn queues are within storage length.

TABLE 3-3 Ironbound Rd./Cths. Commons/Cul-de-sac							
UNSIGNALIZED LOS And Seconds Delay					Maximum Queues		
	AM		PM		Storage	SimTraffic Q&B	
Overall						AM	PM
EBL/T/R	B	13.4	C	18.2		71	32
WBL/T/R	A	9.3	B	11.1		42	79
NBL/T/R	A	7.8	A	7.6		27	13
SBL/T/R	A	7.5	A	7.8		46	52

SimTraffic queue shown is maximum report value for multi-lane groups

At the Ironbound Road/Courthouse Commons/Ironbound Cul-de-sac unsignalized intersection the eastbound approach has LOS C in the PM, and all other approaches are LOS A or B in both peak hours.

2023 FORECAST AND ANALYSIS – PROPOSED IRONBOUND CROSSING SUP AND IMPROVEMENTS TO IRONBOUND ROAD

Table One on Exhibit 18 shows trip generation for the proposed 6,049 sq. ft. convenience store building with twelve vehicle fueling positions (v.f.p.) using Trip Generation Manual, 10th Edition (TGM10) for Super Convenience Market/Gas Station. Per previous discussions with JCC and VDOT, an average of trip generation based on square footage and v.f.p.'s is used. For the AM peak hour, the equation value for building square footage (top row) and the rate for v.f.p.'s (third row) are averaged for the resulting AM peak hour trip generation (fourth row). For thePM peak hour, the rate value for building square footage (second row) and the rate for v.f.p.'s third row) are averaged for the resulting AM peak hour trip generation (fourth row).

TGM10 does not provide pass by trip generation rates for Super Convenience Market/Gas Station, Land Use Code (LUC) 960. LUC 853, Convenience Market With Gasoline Pumps, does have pass by trip generation rates in TGM10 and, except for size, has similar characteristics in that the convenience market is the primary or significant business. LUC 945,Gasoline/Service Station with Convenience Market, also has pass by trip generation rates in TGM10 but it differs LUC 960 in that the primary business is gasoline sales and can include servicing/repairing of automobiles.

Pass by trip generation rates for LUC 853 are used in Table Two on Exhibit 18 to differentiate pass by trips from primary trips. With trip generation used on Exhibit 17, AM peak hour primary trips are 69 trips higher than existing zoning limits for primary trips (99 trips per hour), and PM peak hour primary trips are 19 trips higher than existing zoning limits for primary trips (99 trips per hour). As previously noted, trip generation shown on the fourth row of Table One is higher (34% AM and 26% PM) than previously approved trip generation rates for other identical developments that used v.f.p. trip rates. If the lower trip generation values used in other studies of identical building size are applied to this site, then AM peak hour primary trips are 26 trips higher than existing zoning limits for primary trips (99 trips per hour), and PM peak hour primary trips are **5 trips less** than existing zoning limits for primary trips (99 trips per hour).

Table Three shows primary trip distribution using the trip distribution from the 2006 New Town Section 7 and 8 traffic study. The 2006 distributions are aggregated for the smaller traffic assignment network used in this study.

As noted on the lower section of Exhibit 2 outlined in the blue dog bone shape, traffic counts at two intersections are used for pass by trips: 1) Ironbound Road/Courthouse Commons entrance/Ironbound cul-de-sac (location 1), and 2) Monticello Avenue/Casey Boulevard/Ironbound Road (location 2). Pass by trips are calculated on the proportion of turning movements at the two intersections in Table Four on Exhibit 18 as follows:

1. Turning movements at Monticello Avenue/Casey Boulevard/Ironbound Road (location2)

are listed except for turning movements to and from Ironbound Road. Those movements at location 2 are captured at location 1.

2. Turning movements at Ironbound Road/Courthouse Commons entrance/Ironbound cul-de-sac (location 1) are listed except for turning movements to and from the Ironbound cul-de-sac which are excluded.
3. All listed turning movements at the intersections are totaled and pass by trips for each turning movement are calculated based on percentage of total.

Trip assignments for primary trips and pass by trips are shown on the Appendix Exhibit G series as follows:

- Appendix Exhibit G1: primary trips
- Appendix Exhibit G2: pass by trips off-site at Monticello Avenue/Casey Boulevard/Ironbound Road
- Appendix Exhibit G3: pass by trips at Ironbound Road/Ironbound Cul-De-Sac/Courthouse Commons
- Appendix Exhibit G4: total pass by trips

Total trip assignments are shown on Exhibit 19. Exhibit 20 shows total 2023 traffic with Ironbound Crossing proposed SUP. Exhibit 20 also shows the lane configuration for road improvements on Ironbound Road for access to the proposed SUP. These improvements are illustrated on the concept design by AES Consulting Engineers on Exhibit 21.

On the west side of Ironbound Road, a southbound right turn lane on Ironbound Road at Ironbound Cul-De-Sac is to be constructed with 100 feet full width storage and a 100-foot taper. This turn lane is warranted per VDOT criteria (see Appendix Exhibit M1 for VDOT right turn lane warrant). A northbound left turn lane on Ironbound Road at the Ironbound Cul-De-Sac is not warranted (see Appendix Exhibit M2 and M3).

On the east side of Ironbound Road, widening for a transition from one northbound lane of pavement to two northbound lanes of pavement begins at New Quarter Drive. The northbound transition curve beginning at New Quarter Drive widens to two lanes with a length of approximately 100 feet at the northbound approach to the Courthouse Commons entrance. This keeps the transition out of the intersection two northbound lanes through the Courthouse Commons/Ironbound Cul-De-Sac intersection.

The northbound widening provides additional lane of pavement on the Ironbound Road northbound approach to Monticello Avenue, making three lanes total. This new, right-side lane of pavement accommodates shared through and right turns. The existing striped out left turn lane on northbound Ironbound Road at Monticello is left in place, and the remaining center lane of the three lanes becomes a left turn lane. The left side northbound lane at Courthouse Commons

continues directly into this new right side left turn lane at Monticello Avenue.

Following are level of service (LOS) and queuing results for locations 1, 2 and 5 for 2023 traffic conditions with proposed SUP for Ironbound Crossing and proposed improvements to Ironbound Road (see Appendix Exhibit series J7, J8, K7, K8, L7 and L8 for LOS and queuing reports):

TABLE 4-1 Monticello Ave/Rt. 199							
SIGNALIZED LOS And Seconds Delay					Maximum Queues		
	AM		PM		Storage	SimTraffic Q&B	
Overall	B	19.7	C	24.5		AM	PM
EBL2	E	57.4	E	60.9	445	227	391
EBT2	A	8.2	B	13.4		247	558
EBR	A	2.1	A	0.9	390	0	0
WBL2	E	61.8	E	56.9	455	107	453
WBT2	A	6.6	C	20.3		177	600
WBR	A	3.9	B	13.1		0	76
NBL2	D	54.6	D	54.0	575	221	441
NBR	A	0.2	A	0.2		0	34
SBL2	D	54.6	D	44.2	480	53	59
SBR	A	0.4	A	0.7		0	0

SimTraffic queue shown is maximum report value for multi-lane groups

At the Monticello Avenue/Rt. 199 signalized intersection, there is overall LOS B in the AM peak hour and LOS C in the PM peak hour. All left turn and right turn queues are within storage length.

TABLE 4-2 Mont. Ave./Casey Blvd./Ironbound Road							
SIGNALIZED LOS And Seconds Delay					Maximum Queues		
	AM		PM		Storage	SimTraffic Q&B	
Overall	C	23.6	C	30.6		AM	PM
EBL2	D	47.7	D	46.1	340	124	170
EBT2	B	10.3	C	23.5		289	421
EBR	C	25.6	C	21.0		106	103
WBL	A	8.3	C	26.9	275	151	198
WBT3R	A	8.4	B	19.3		160	340
NBL	D	54.2	D	53.8	255	172	240
NBL	D	54.2	D	53.8		201	264
NBT/R	D	51.5	D	48.2		156	132
SBL/T	E	58.2	E	56.9		97	231
SBR	D	40.1	D	39.8		148	264
SBR	D	40.1	D	39.8	265	71	202

SimTraffic queue shown is maximum report value for multi-lane groups

At the Monticello Avenue/Casey Boulevard/Ironbound Road signalized intersection, there is overall LOS C in the AM peak hour and LOS C in the PM peak hour. All left turn and right turn

queues are within storage length. This is particularly true for the Ironbound Road northbound approach to Monticello Avenue:

- the left side left turn lane maximum queue is 240 feet, within the 255 feet of storage provided.
- The right side left turn lane maximum queue is 264 feet and the shared through/right turn lane maximum queue is 132 feet. Both of these are well within 310 feet of available lane length from the stop bar at Monticello Avenue to the end of the painted median at Ironbound Cul-De-Sac/Courthouse Commons.

TABLE 4-3 Ironbound Rd./Cths. Commons/Cul-de-sac							
UNSIGNALIZED LOS And Seconds Delay					Maximum Queues		
	AM		PM		Storage	SimTraffic Q&B	
Overall						AM	PM
EBL/T/R	C	17.3	C	20.8		129	120
WBL/T/R	A	9.9	B	11.1		48	84
NBL/T	A	8.3	A	7.9		44	40
NBT/R	A	0.1	A	0.0		0	0
SBL/T	A	7.5	A	7.8		43	58
SBR	A	7.5	A	0.0	100	16	8

SimTraffic queue shown is maximum report value for multi-lane groups

At the Ironbound Road/Courthouse Commons/Ironbound Cul-de-sac unsignalized intersection, the eastbound approach has LOS C in the AM and PM peak hours, and all other approaches are LOS A or B in both peak hours.

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SUMMARY AND CONCLUSIONS

At the Monticello Avenue/Rt. 199 signalized intersection in the PM peak hour, there is overall LOS C for all four scenarios with overall intersection delay ranging from 22.8 in 2021 to 24.5 seconds with the proposed SUP and improvements in 2023. In the AM peak hour, there is overall LOS C for all four scenarios with overall intersection delay ranging from 22.1 in 2021 to 20.1 seconds with the proposed SUP and proposed improvements (this decrease in delay is an idiosyncrasy of generally low traffic volumes and Synchro reallocation of green time to through movements with increasing through movement traffic). All auxiliary lane queues are within storage for all four scenarios. The impact of the proposed SUP on the Monticello Avenue/Rt. 199 signalized intersection for the heavier PM peak hour traffic is slight: 0.3 seconds delay over existing zoning.

At the Monticello Avenue/Casey Boulevard/Ironbound Road signalized intersection in the PM peak hour, there is overall LOS C in the PM peak hour for all four scenarios with overall intersection delay ranging from 26.2 in 2021 to 30.4 seconds in 2023 with the proposed SUP and proposed improvements. During the lighter AM peak hour traffic with the proposed SUP, there is overall LOS C with 25.3 seconds delay versus overall LOS B with 19.5 seconds delay for existing zoning. All auxiliary lane queues are within storage for all four scenarios. The impact of the proposed SUP with improvements on the Monticello Avenue/Rt. 199 signalized intersection during the heavier traffic PM peak hour is slight: 1.6 seconds delay over existing zoning.

At the Ironbound Road/Courthouse Commons/Ironbound Cul-de-sac intersection, there is LOS A and B for the southbound, northbound, and westbound approaches for both peak hours for all scenarios. For the eastbound approach, there is LOS C for both peak hours.

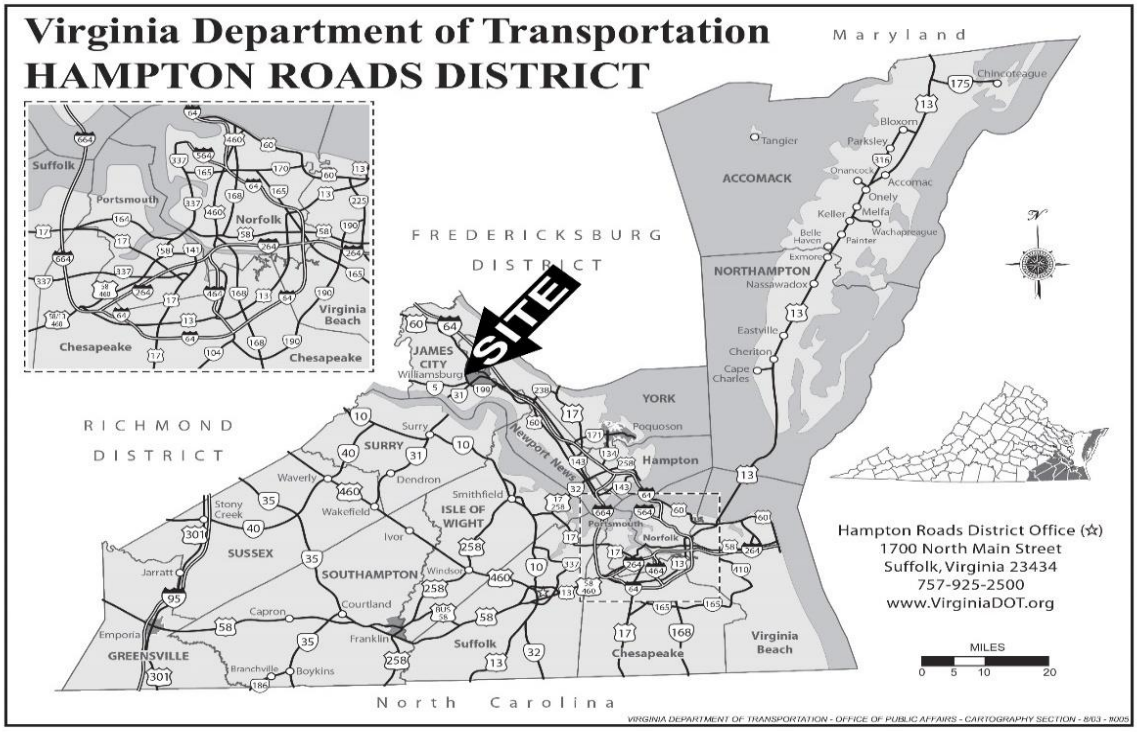
On northbound Ironbound Road at Monticello Avenue, the SimTraffic maximum queue with the proposed SUP is 264 feet. This is a slight change from SimTraffic maximum queue for 2021 traffic of 261 feet, and is less than SimTraffic maximum queue with existing zoning of 292 feet (Note: all of these maximum queues are for the PM peak hour).

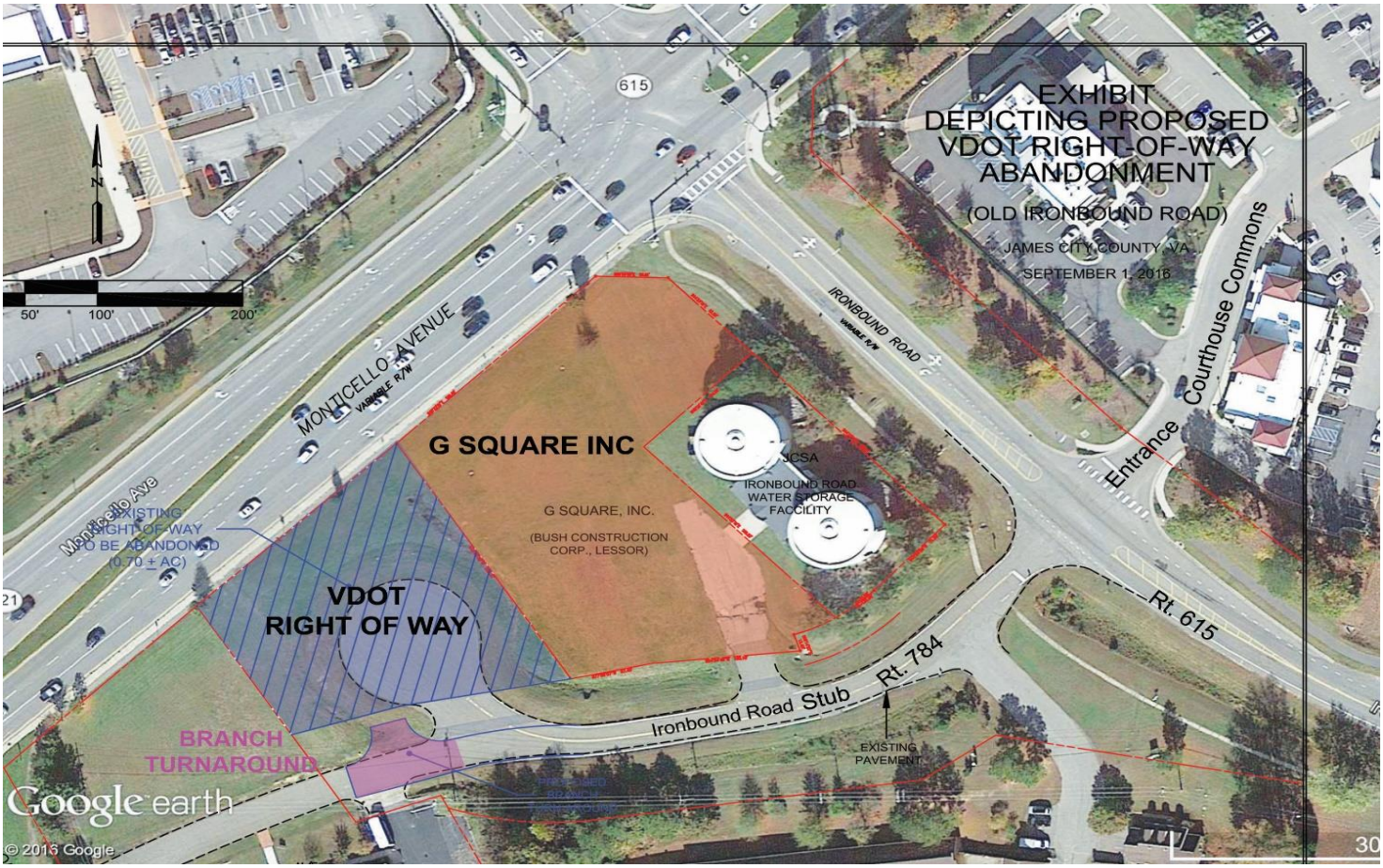
Following are anticipated improvements to be constructed with the proposed development and included in SUP conditions:

1. If the SUP is granted, full construction plans for all improvements on Ironbound Road will be included with site plan for VDOT approval.
2. Third lane of pavement on northbound Ironbound Road from Ironbound Cul-de-sac/Courthouse Commons to Monticello Avenue with pavement transition south of Ironbound Cul-de-sac/Courthouse Commons to Monticello Avenue as shown on Exhibit 21 concept plan. Construction plan review and approval by VDOT may include adjustment to the Exhibit 21 concept plan to achieve the third lane of pavement.
3. Southbound right turn lane on Ironbound Road at Ironbound Cul-de-sac/Courthouse, 100 feet of full width lane, 100-foot taper.
4. Restriping of Ironbound Road for pavement additions.

5. Modifications to northbound traffic signal loop detectors and related equipment for signalized traffic control on northbound Ironbound Road at Monticello Avenue.
6. Adjustments to curbs, sidewalks and other public road structures and equipment necessary to accommodate the lane additions cited above.

REPORT EXHIBITS

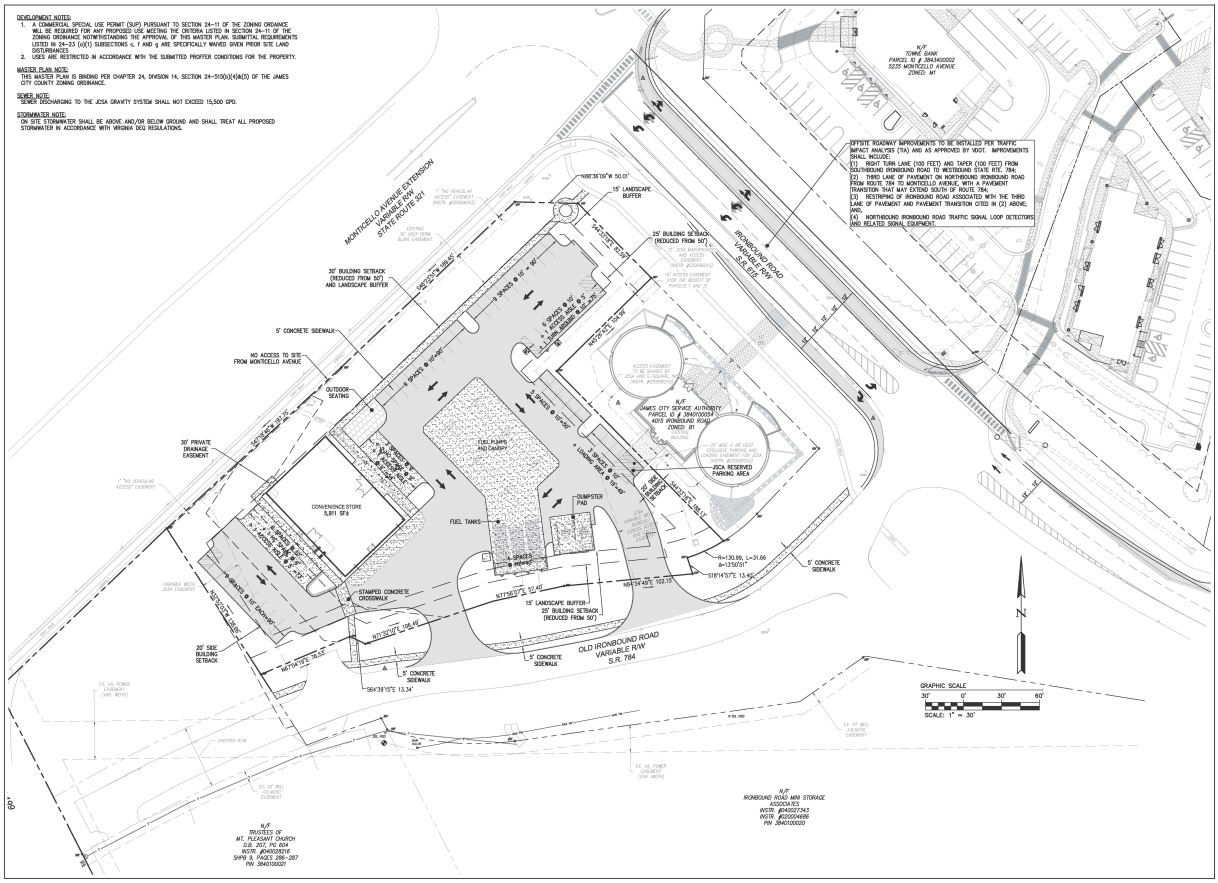


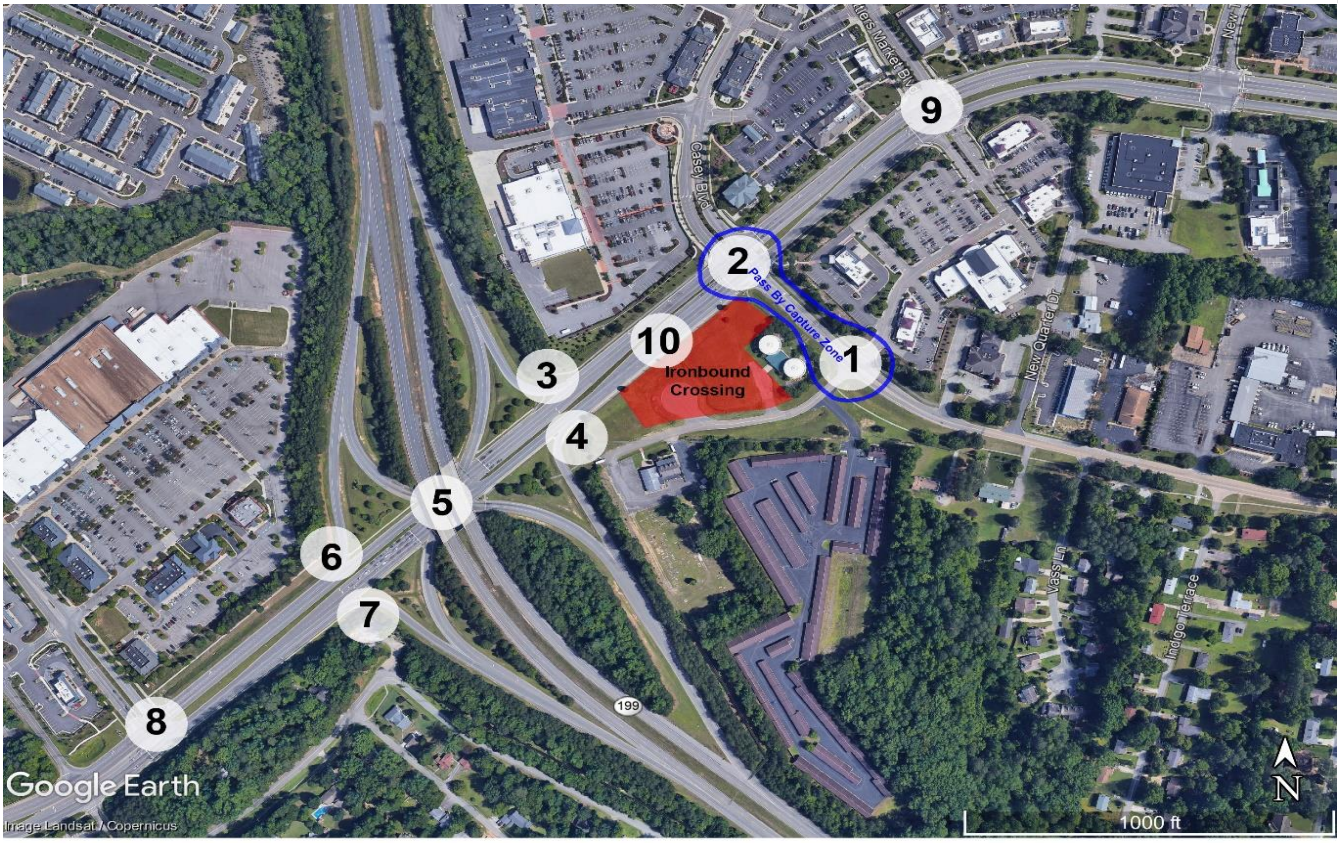


REGIONAL AND AREA MAPS
IRONBOUND CROSSING

DRW Consultants, LLC
804-794-7312

Exhibit 1

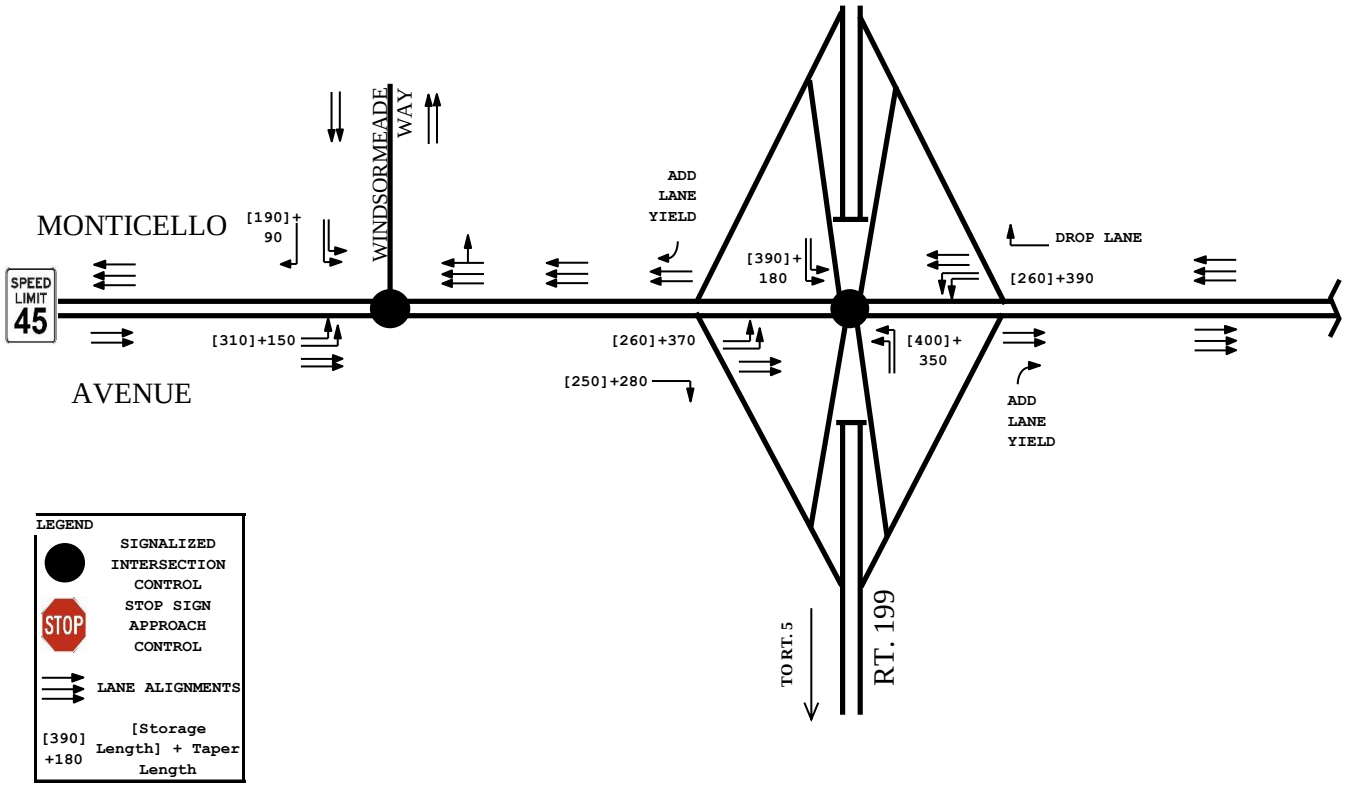


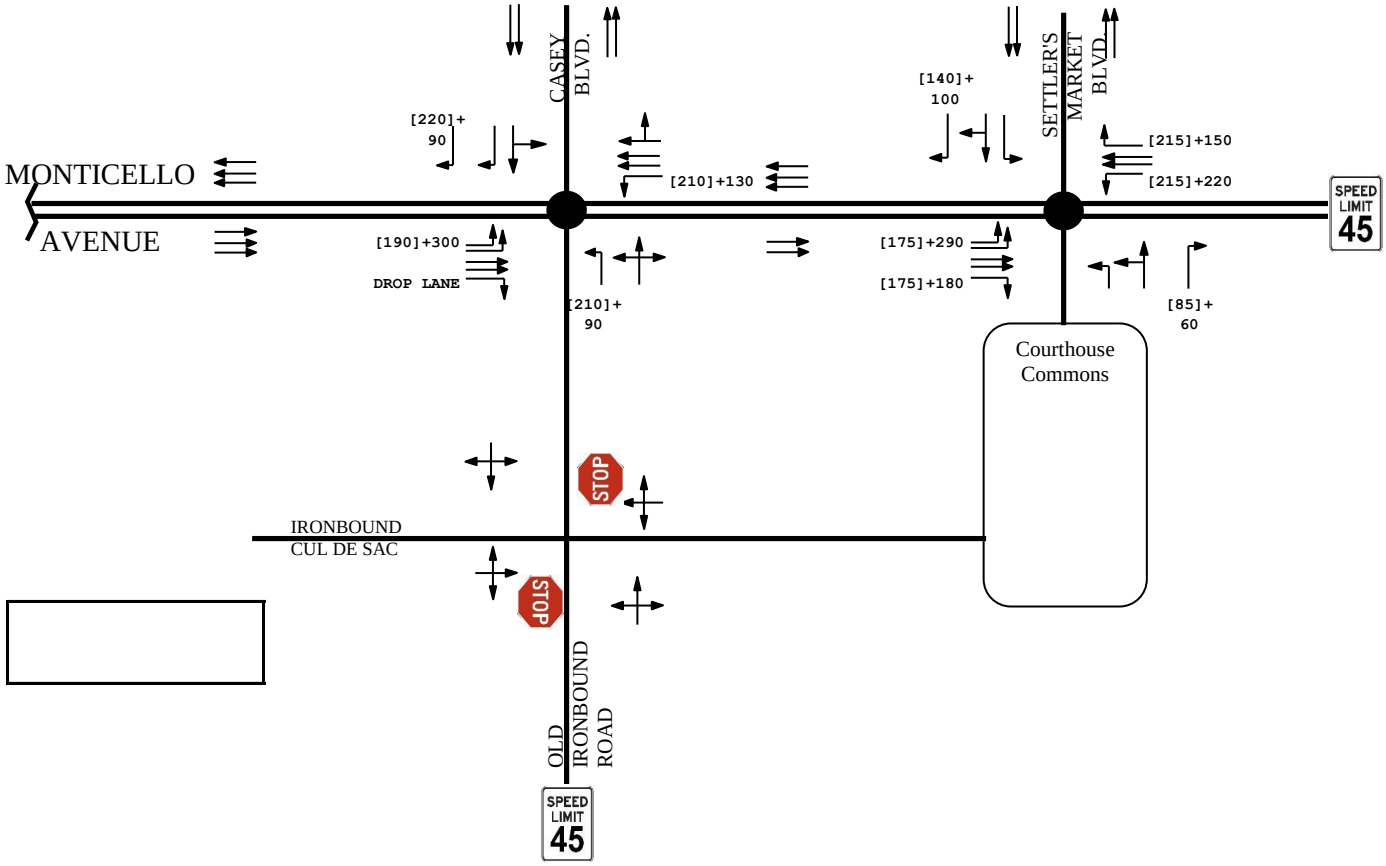


PROPOSED SITE LAYOUT AND
TRAFFIC COUNT/STUDY LOCATIONS

DRW Consultants, LLC
804-794-7312

Exhibit 2

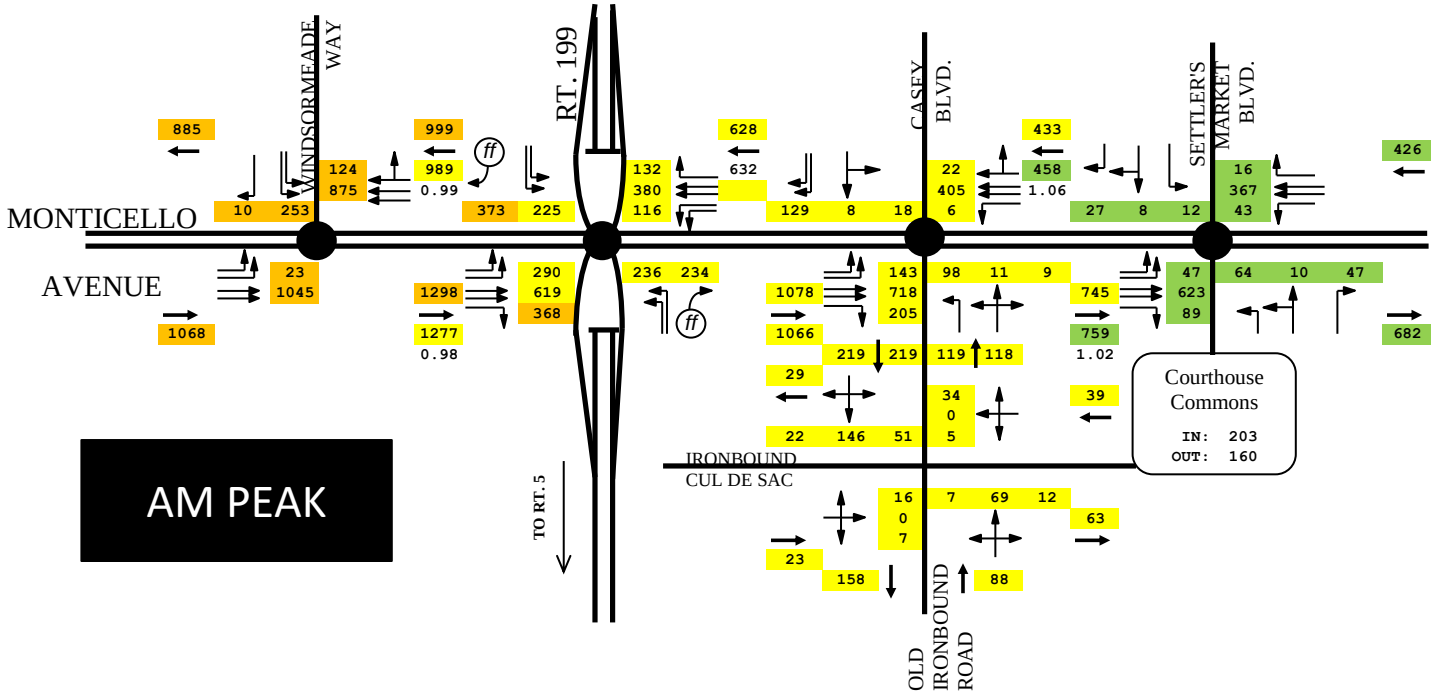


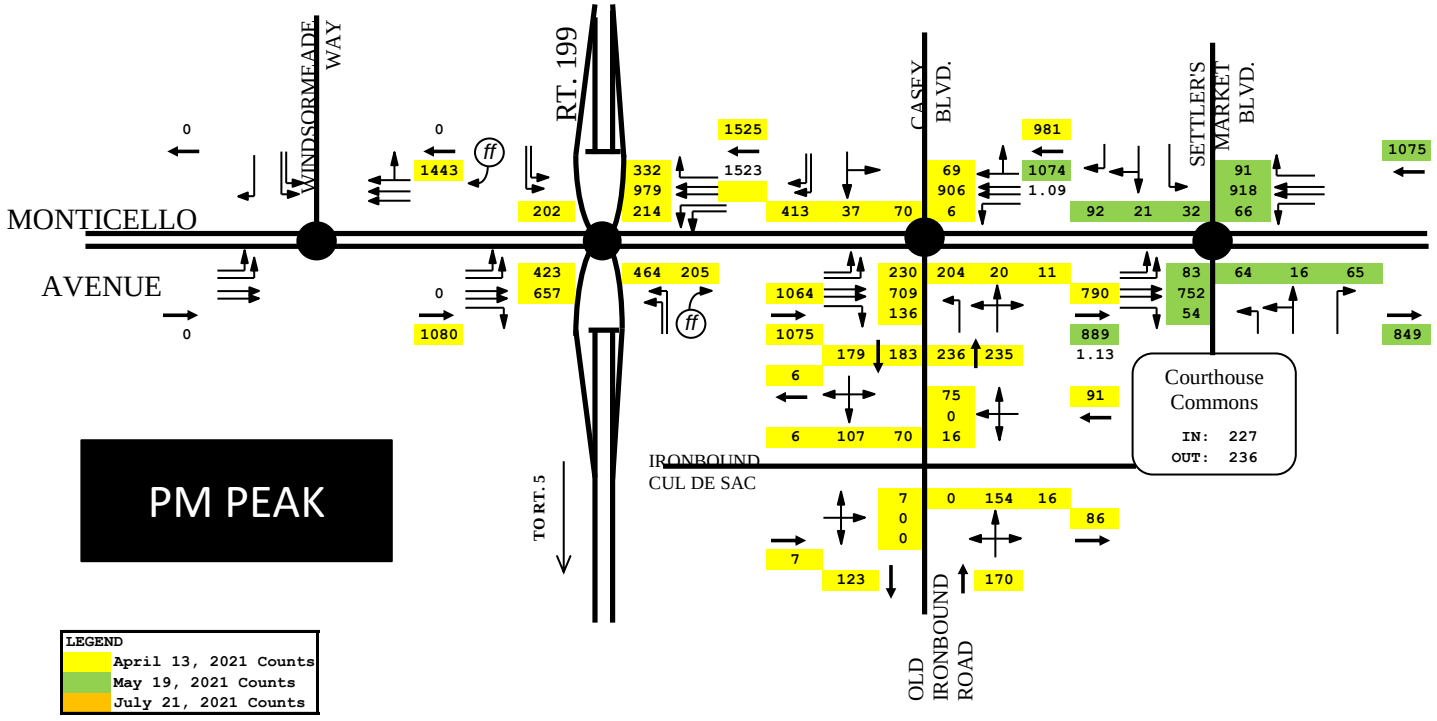


EXISTING ROADWAY CONDITIONS

DRW Consultants, LLC
804-794-7312

Exhibit 2a

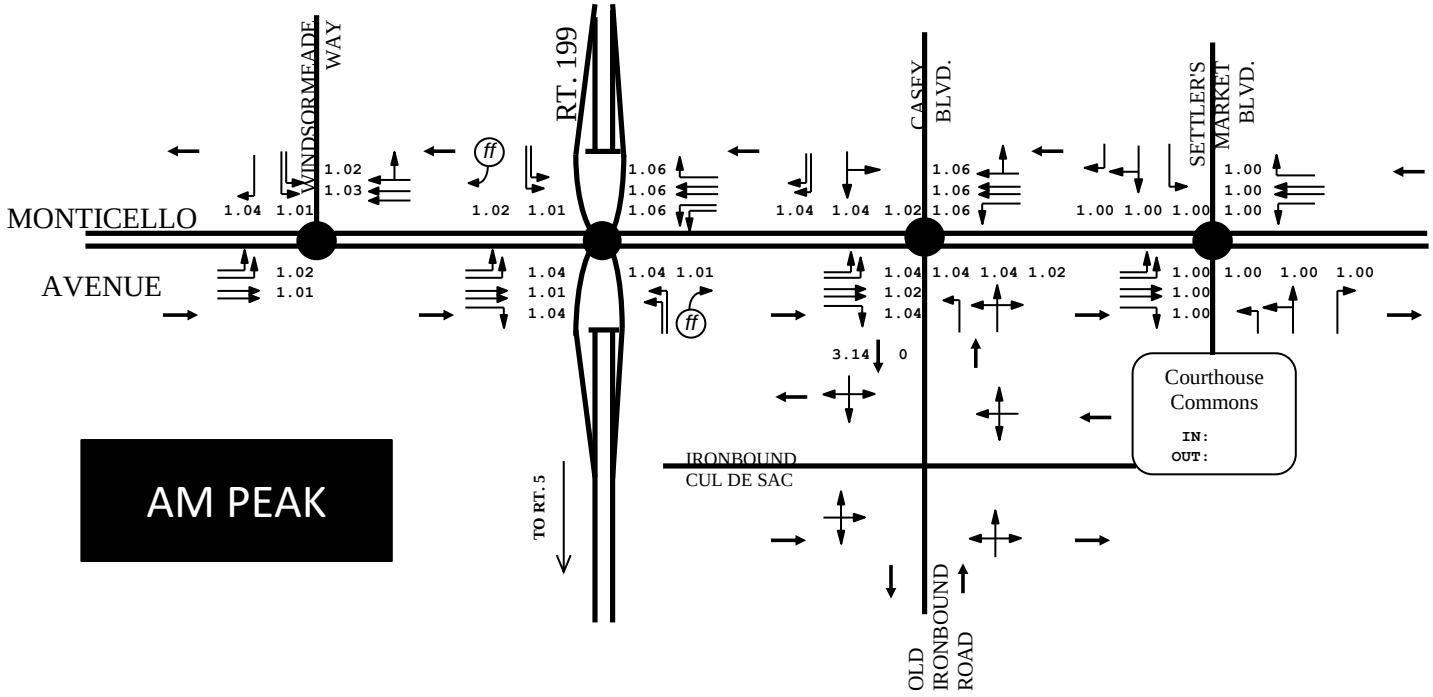


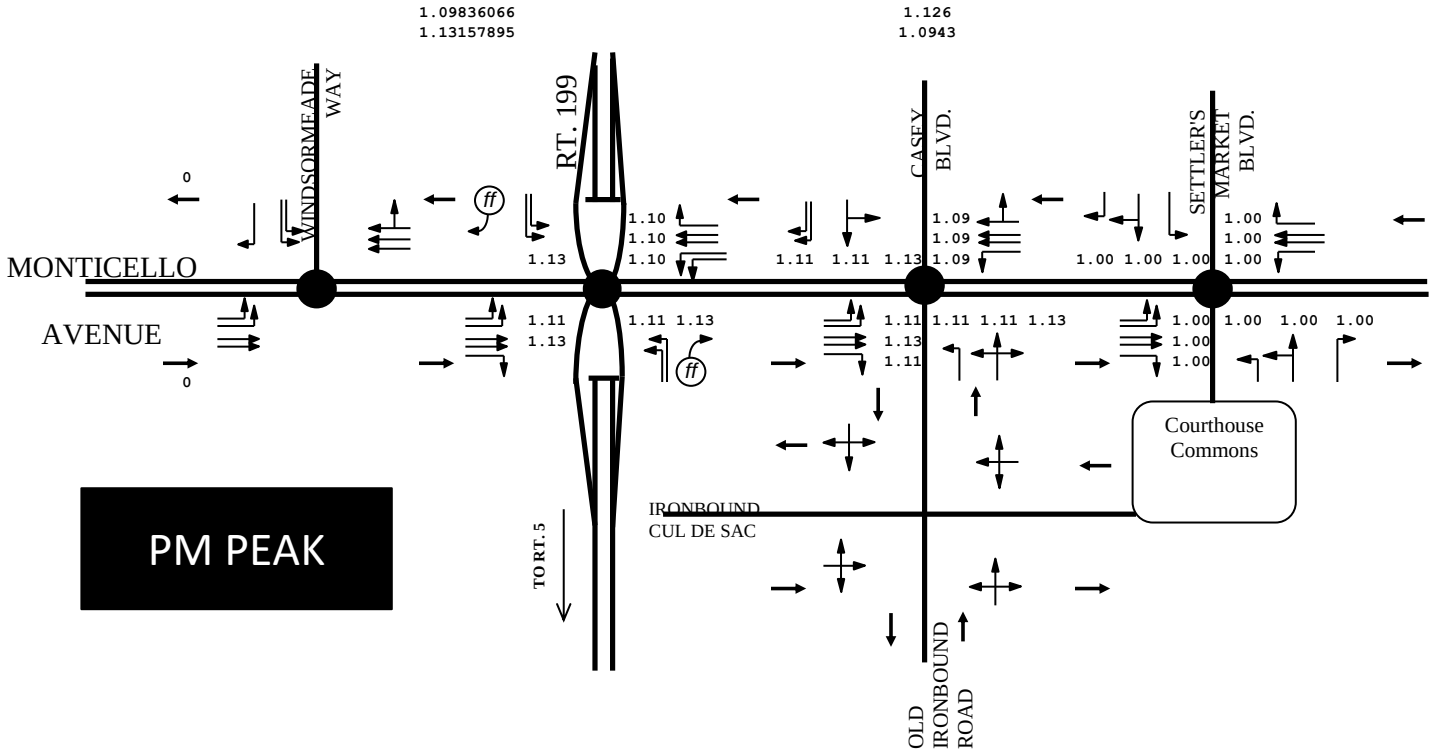


APRIL 13, 2021 PEAK HOUR COUNTS (YELLOW),
MAY 19, 2021 COUNTS (GREEN) AND JULY 21, 2021 (ORANGE)
8 AM TO 9 AM, 4 PM TO 5 PM
WITHOUT BALANCE

DRW Consultants, LLC
804-794-7312

Exhibit 3

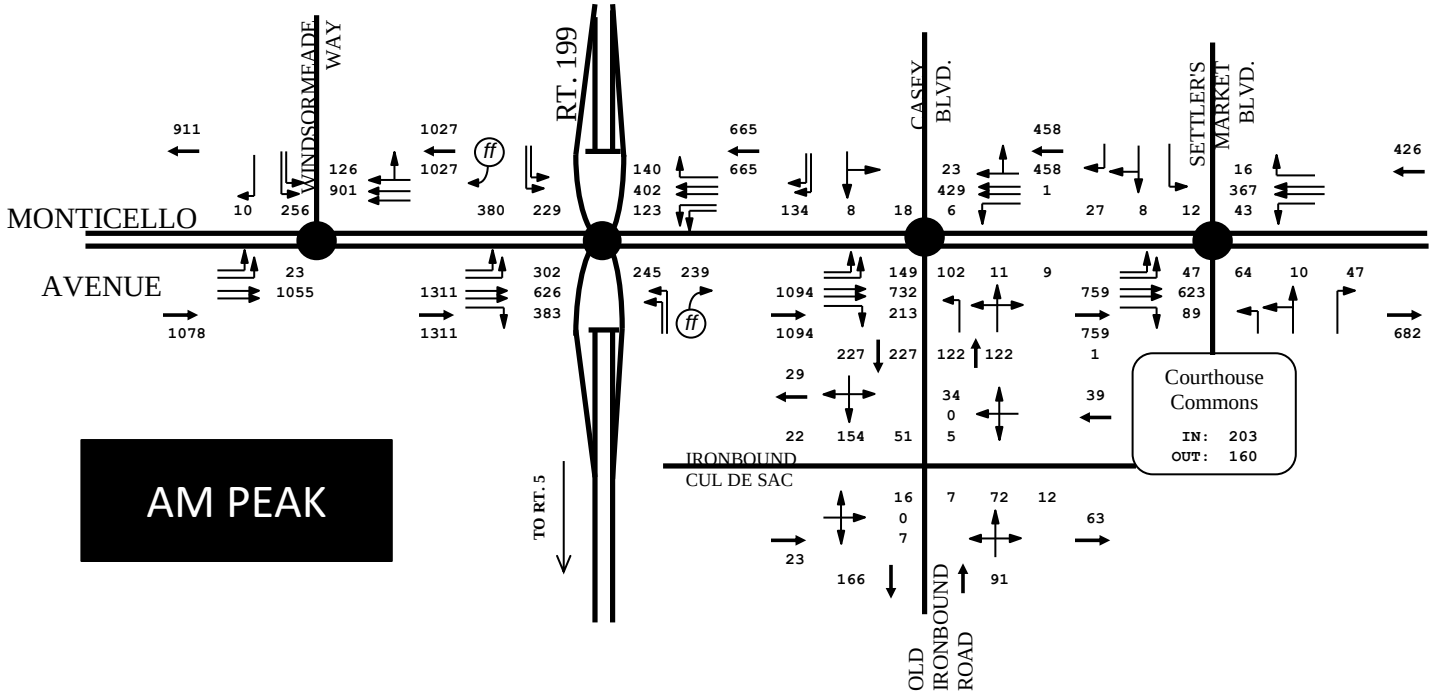


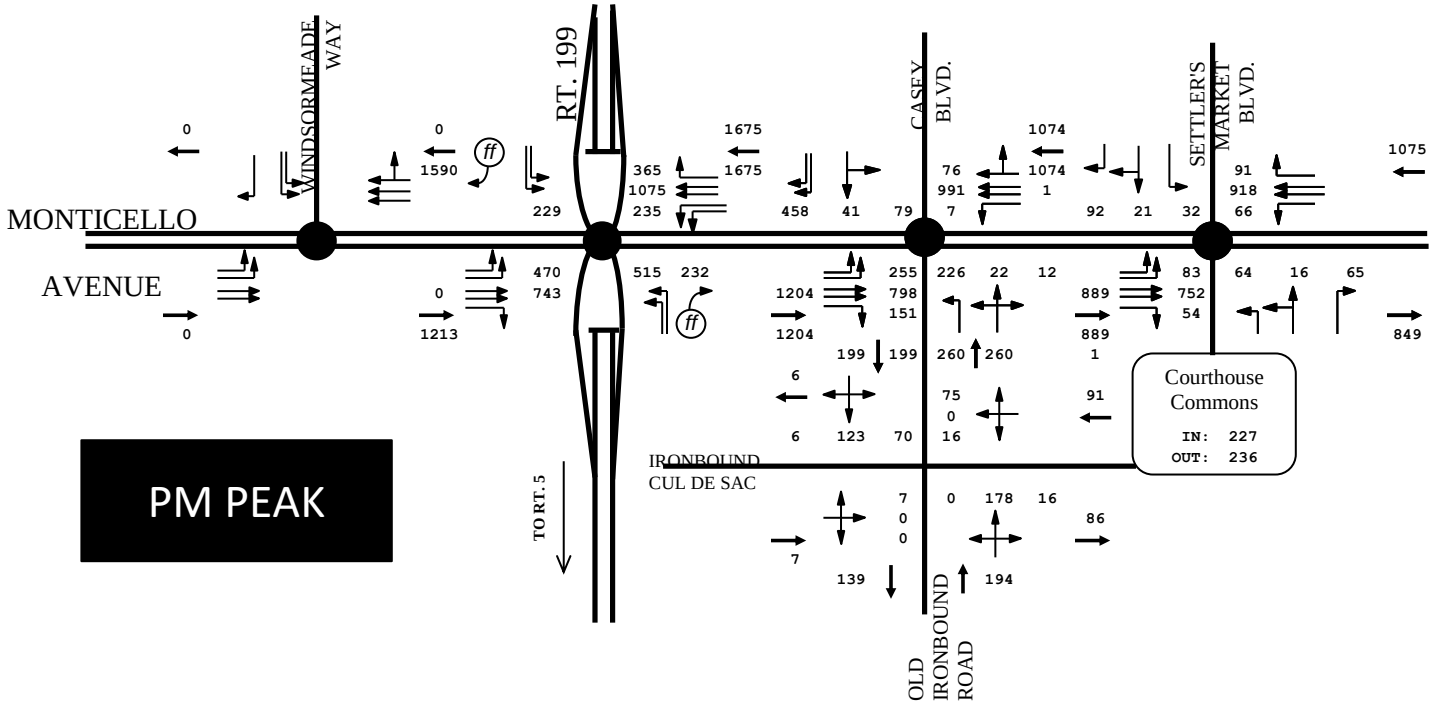


APRIL 13, 2021 PEAK HOUR COUNTS/MAY 19, 2021 COUNTS
8 AM TO 9 AM, 4 PM TO 5 PM
ADJUSTMENT FACTORS FOR BALANCE

DRW Consultants, LLC
804-794-7312

Exhibit 3a





APRIL 13, 2021 PEAK HOUR COUNTS/MAY 19, 2021 COUNTS
JULY 21, 2021 COUNTS
8 AM TO 9 AM, 4 PM TO 5 PM
WITH BALANCE

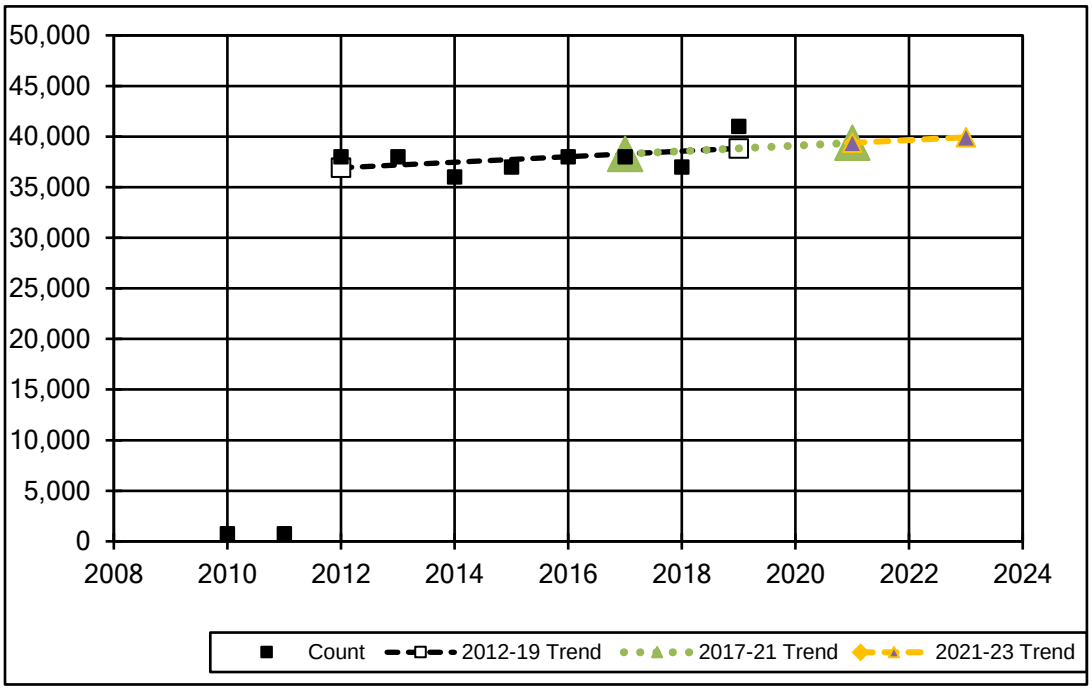
DRW Consultants, LLC
804-794-7312

Exhibit 4

Street: Rt. 5000 Monticello Avenue
From: Rt. 199
To: News Road

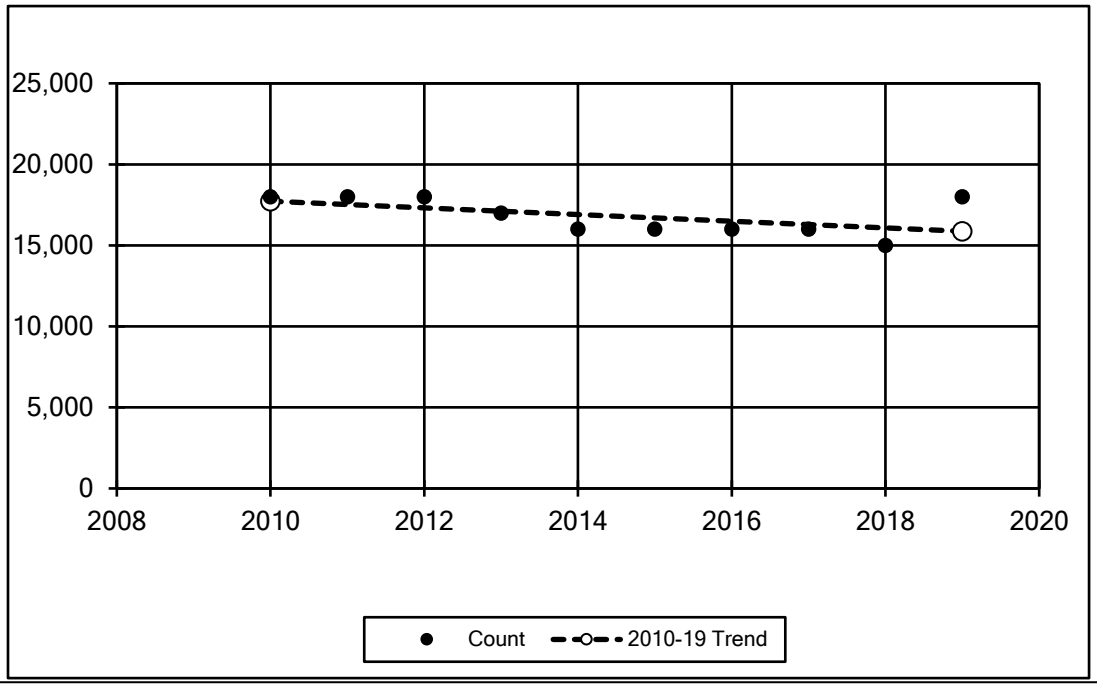
Year	2016-21 Trend	
2016	38,012	Δ16
2021	39,381	1.04

Year	Count	
~~2010~~	~~750~~	
~~2011~~	~~750~~	
2012	38,000	
2013	38,000	
2014	36,000	
2015	37,000	
2016	38,000	
2017	38,000	
2018	37,000	
2019	41,000	
Year	2012-19 Trend	
2012	36,917	Δ12
2019	38,833	1.05
Year	2017-21 Trend	
2017	38,286	Δ17
2021	39,381	1.03
Year	2021-23 Trend	
2021	39,381	Δ21
2023	39,929	1.01



Street: Rt. 321 Monticello Avenue
From: Ironbound Road
To: Compton Dr.

Year	Count	
2010	18,000	
2011	18,000	
2012	18,000	
2013	17,000	
2014	16,000	
2015	16,000	
2016	16,000	
2017	16,000	
2018	15,000	
2019	18,000	
Year	2010-19 Trend	
2010	17,727	Δ10
2019	15,873	0.90



VDOT Average Annual Daily Traffic (AADT) Volume Estimates

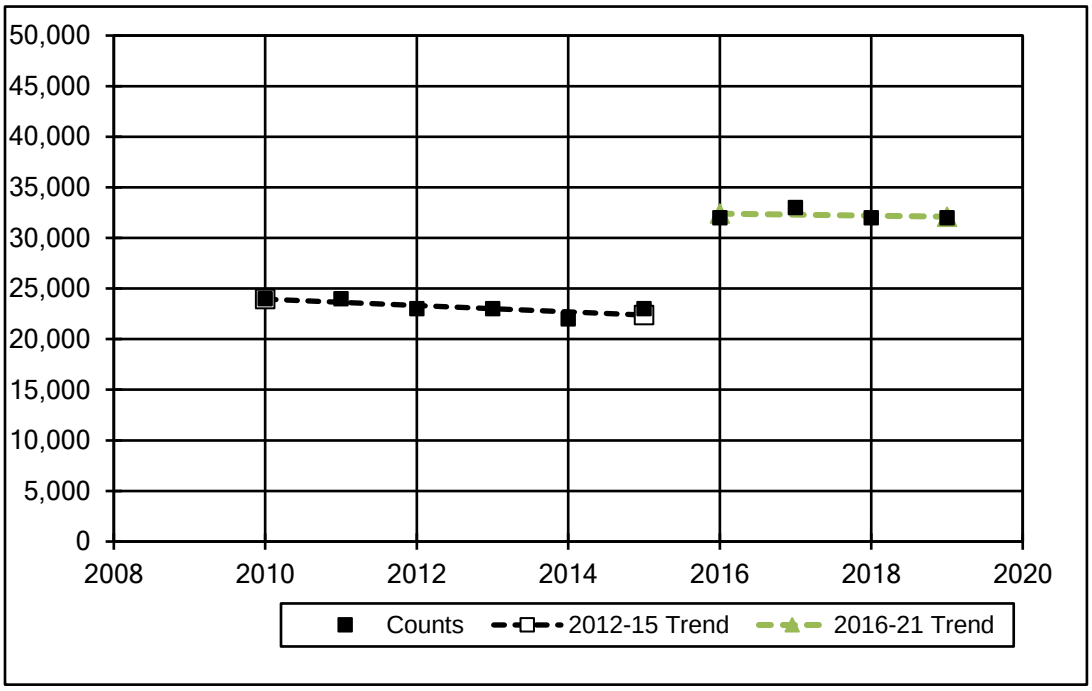
MONTICELLO AVENUE
DAILY TRAFFIC COUNTS AND TRENDS

DRW Consultants, LLC
804-794-7312

Exhibit 5

Street: Rt. 321 Monticello Avenue
From: Rt. 199
To: Ironbound Road

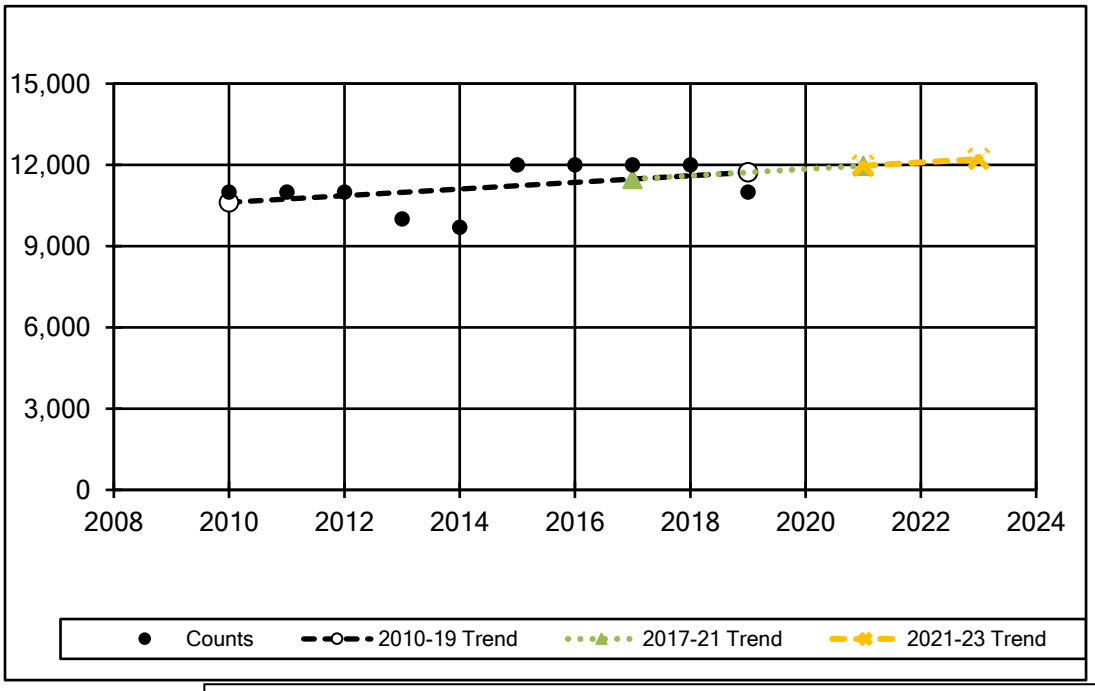
Year	Counts	
2010	24,000	
2011	24,000	
2012	23,000	
2013	23,000	
2014	22,000	
2015	23,000	
2016	32,000	
2017	33,000	
2018	32,000	
2019	32,000	
Year	2012-15 Trend	
2010	23,952	Δ10
2015	22,381	0.93
Year	2017-21 Trend	
2016	32,400	Δ16
2019	32,100	0.99



Street: Rt. 615 Ironbound Road
From: Rt. 321 Monticello Avenue
To: Rt. 616 Strawberry Plains Road

Year	2016-21 Trend	
2016	11,355	Δ16
2021	11,970	1.05

Year	Counts	
2010	11,000	
2011	11,000	
2012	11,000	
2013	10,000	
2014	9,700	
2015	12,000	
2016	12,000	
2017	12,000	
2018	12,000	
2019	11,000	
Year	2010-19 Trend	
2010	10,616	Δ10
2019	11,724	1.10
Year	2017-21 Trend	
2017	11,478	Δ17
2021	11,970	1.04
Year	2021-23 Trend	
2021	11,970	Δ21
2023	12,216	1.02



VDOT Average Annual Daily Traffic (AADT) Volume Estimates

MONTICELLO AVENUE AND IRONBOUND ROAD
DAILY TRAFFIC COUNTS AND TRENDS

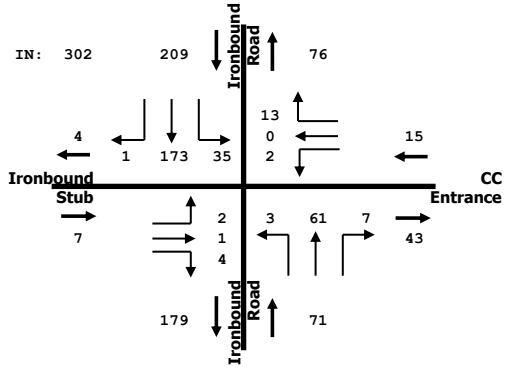
DRW Consultants, LLC
804-794-7312

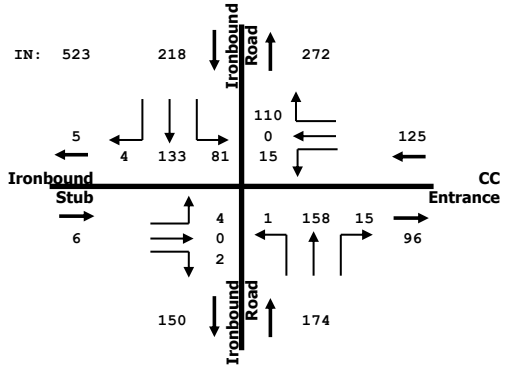
Exhibit 6

Ironbound Road
Ironbound Road
Ironbound Stub
CC Entrance

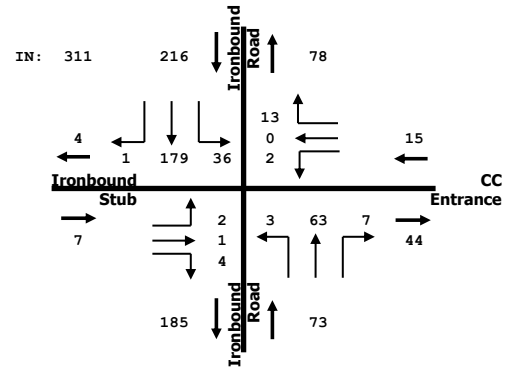
GROWTH FACTOR: 1.04

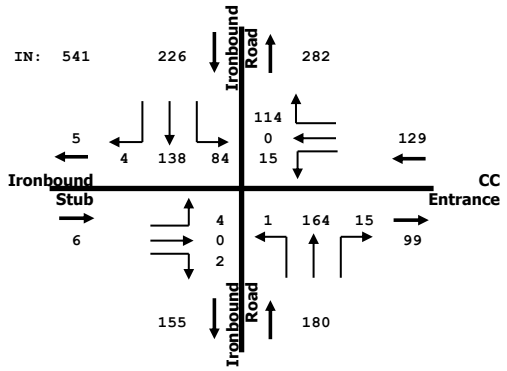
2017 Counts



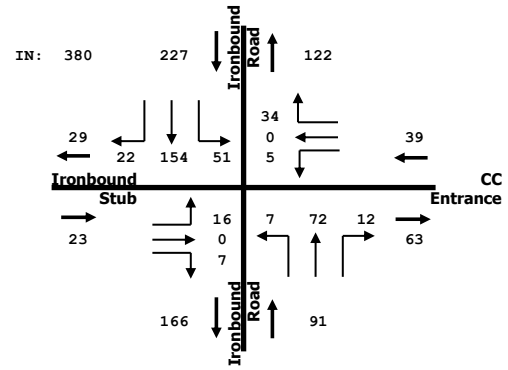


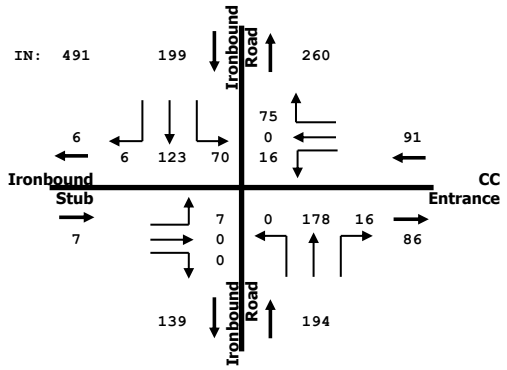
2021 Calibration (2017 Counts WIth Growth Factor)



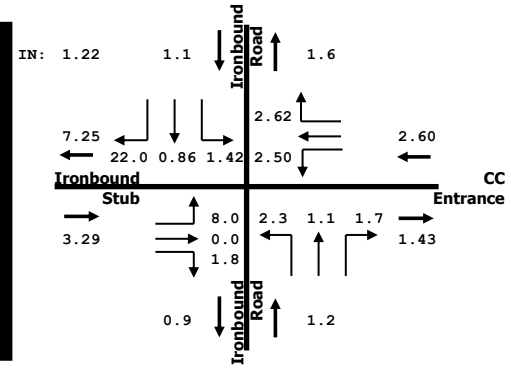


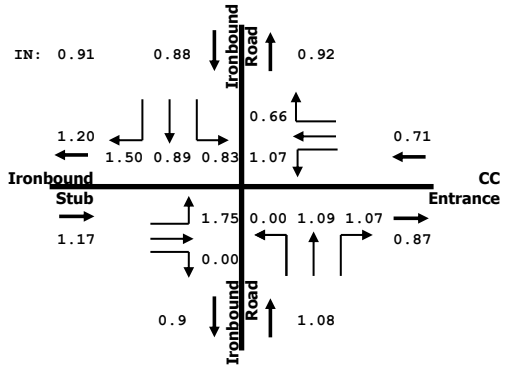
2021 Counts With Balance From





2021Balanced/2021 Calibration Comparison





N

Exhibit Reference

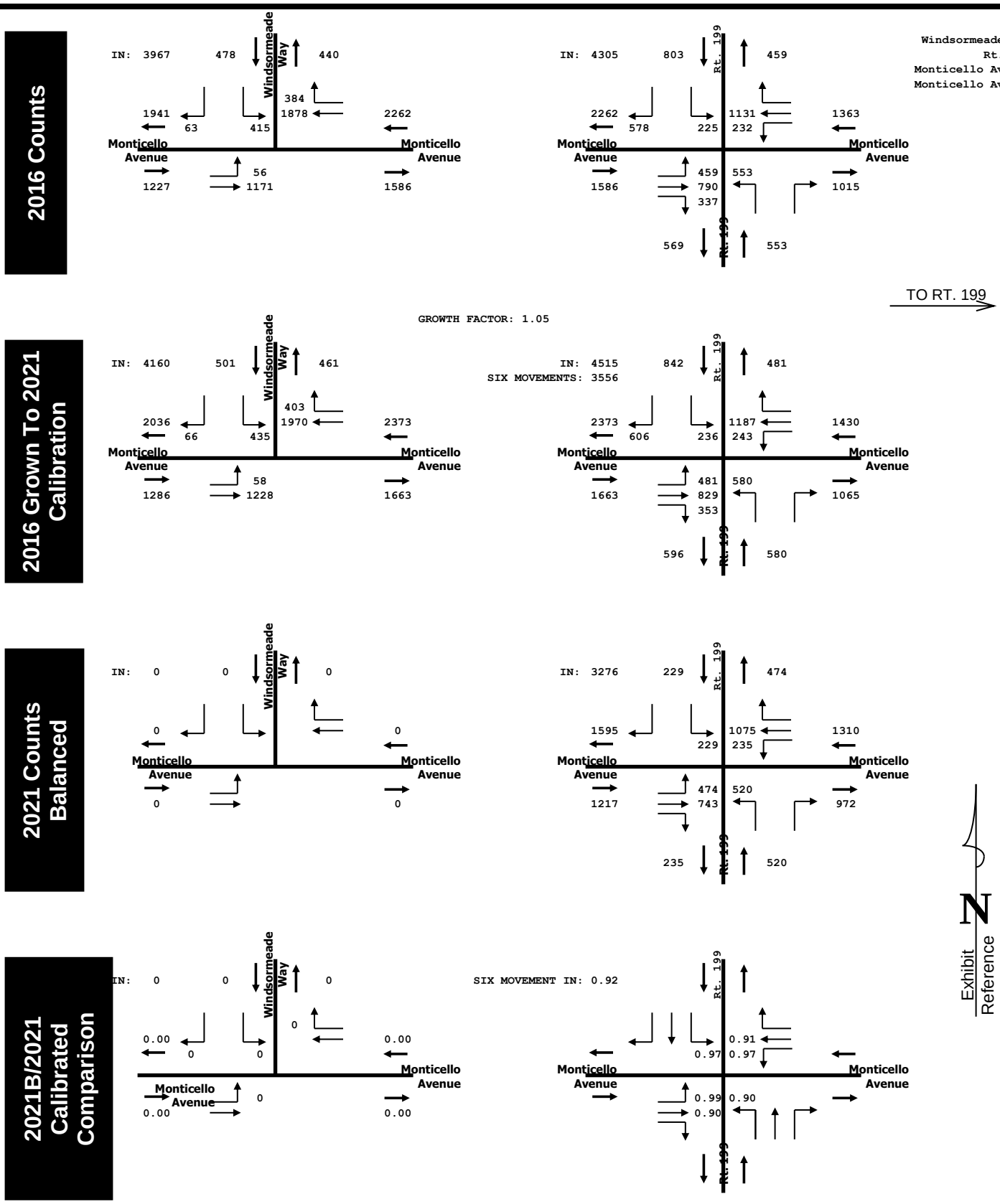
AM Peak Hour

PM Peak Hour

IRONBOUND ROAD/COURTHOUSE COMMONS /IRONBOUND CUL-DE-SAC
2017 AND 2021 BALANCE TRAFFIC COUNTS, 2017-21 CALIBRATION
2021 COUNT TO CALIBRATION COMPARISON

DRW Consultants, LLC
804-794-7312

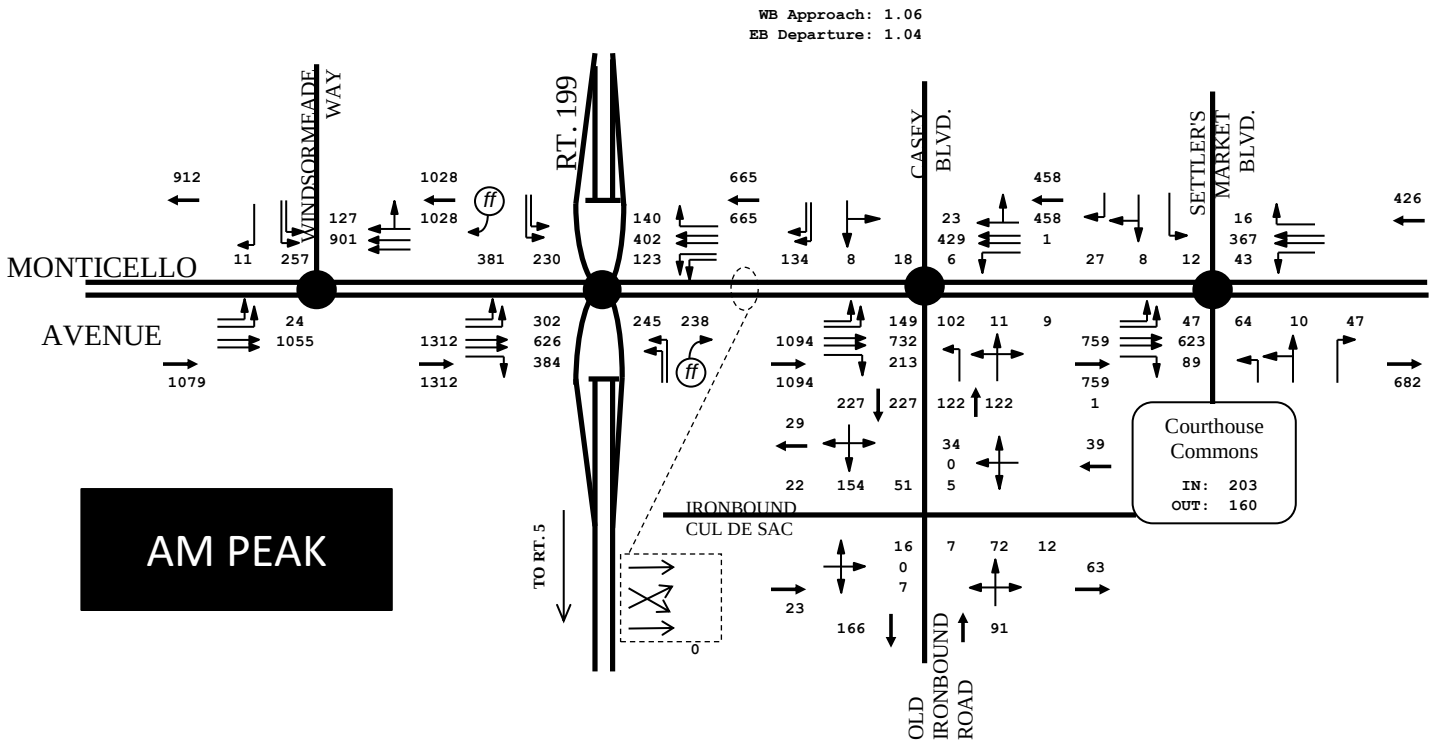
Exhibit 7

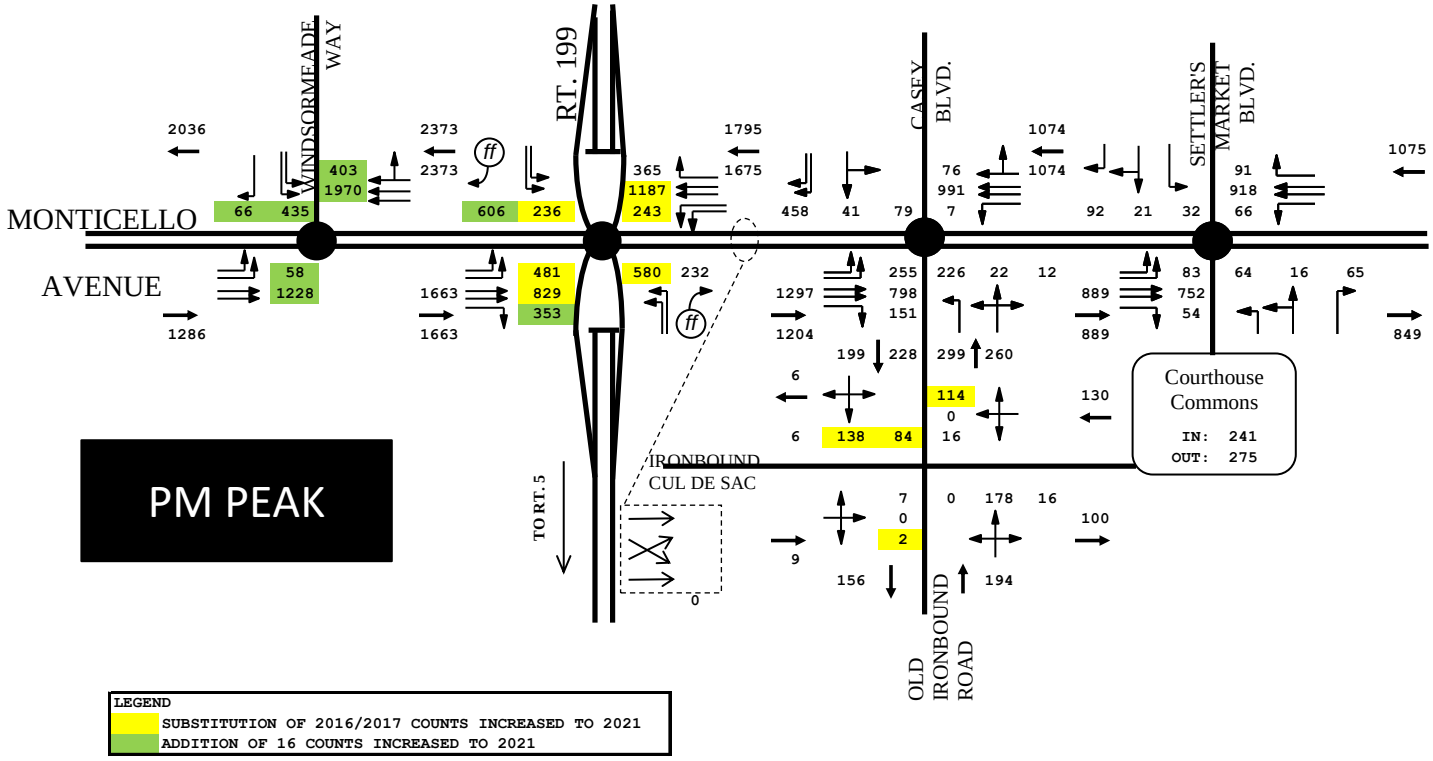


MONTICELLO AVENUE AT WINDSORMEADE WAY AND RT. 199
PM PEAK HOUR
2016 AND 2021 BALANCE TRAFFIC COUNTS, 2016-21 CALIBRATION
2021 COUNT TO CALIBRATION COMPARISON

DRW Consultants, LLC
804-794-7312

Exhibit 8

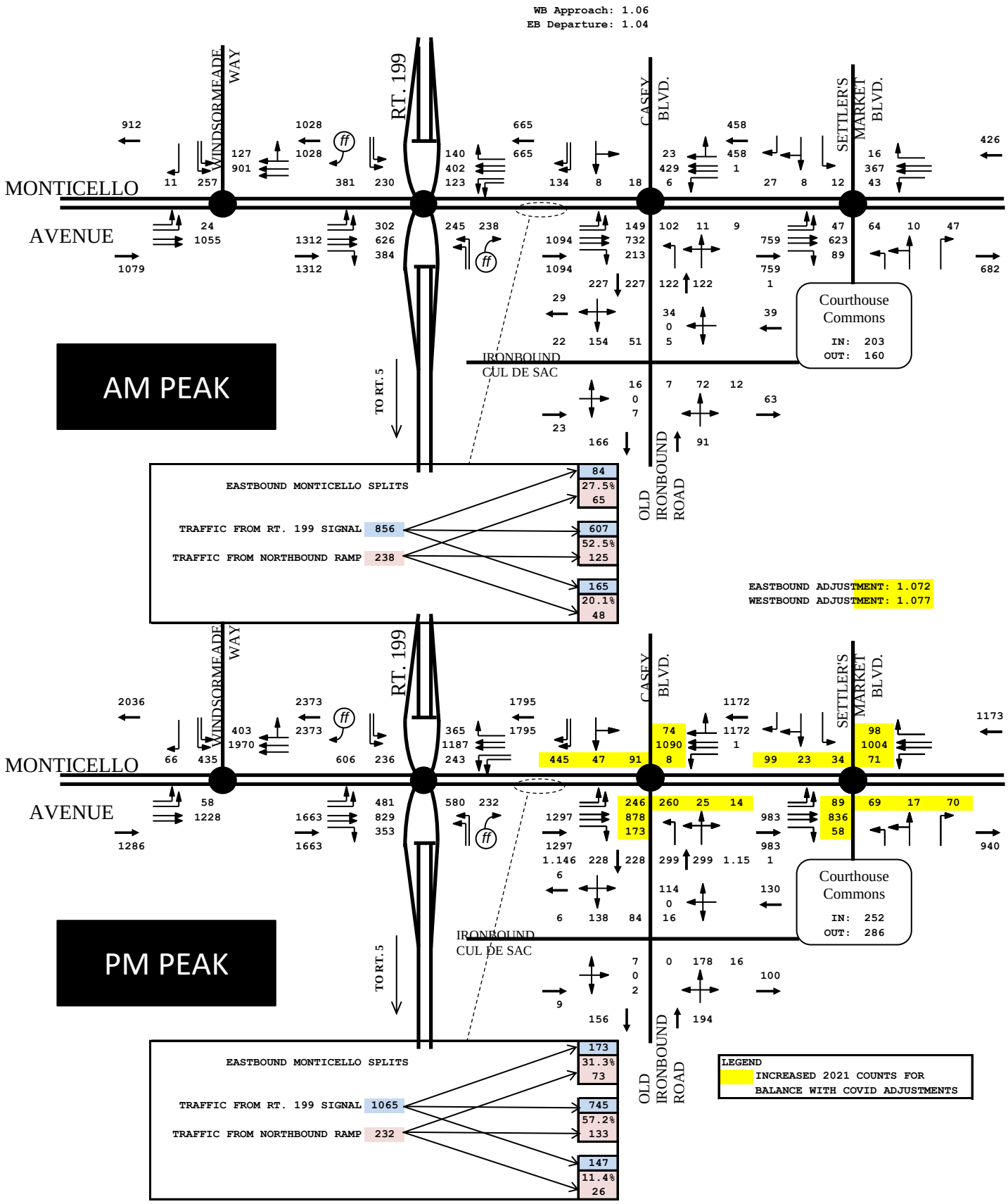




FIRST 2021 COUNT ADJUSTMENT:
1. SUBSTITUTION OF HIGHER 2016/2017 COUNTS INCREASED TO 2021 (YELLOW)
2. ADDITION OF 2016 COUNTS INCREASED TO 2021 AT WINDSORMEADE WAY/RT. 199 RAMPS (GREEN)

DRW Consultants, LLC
804-794-7312

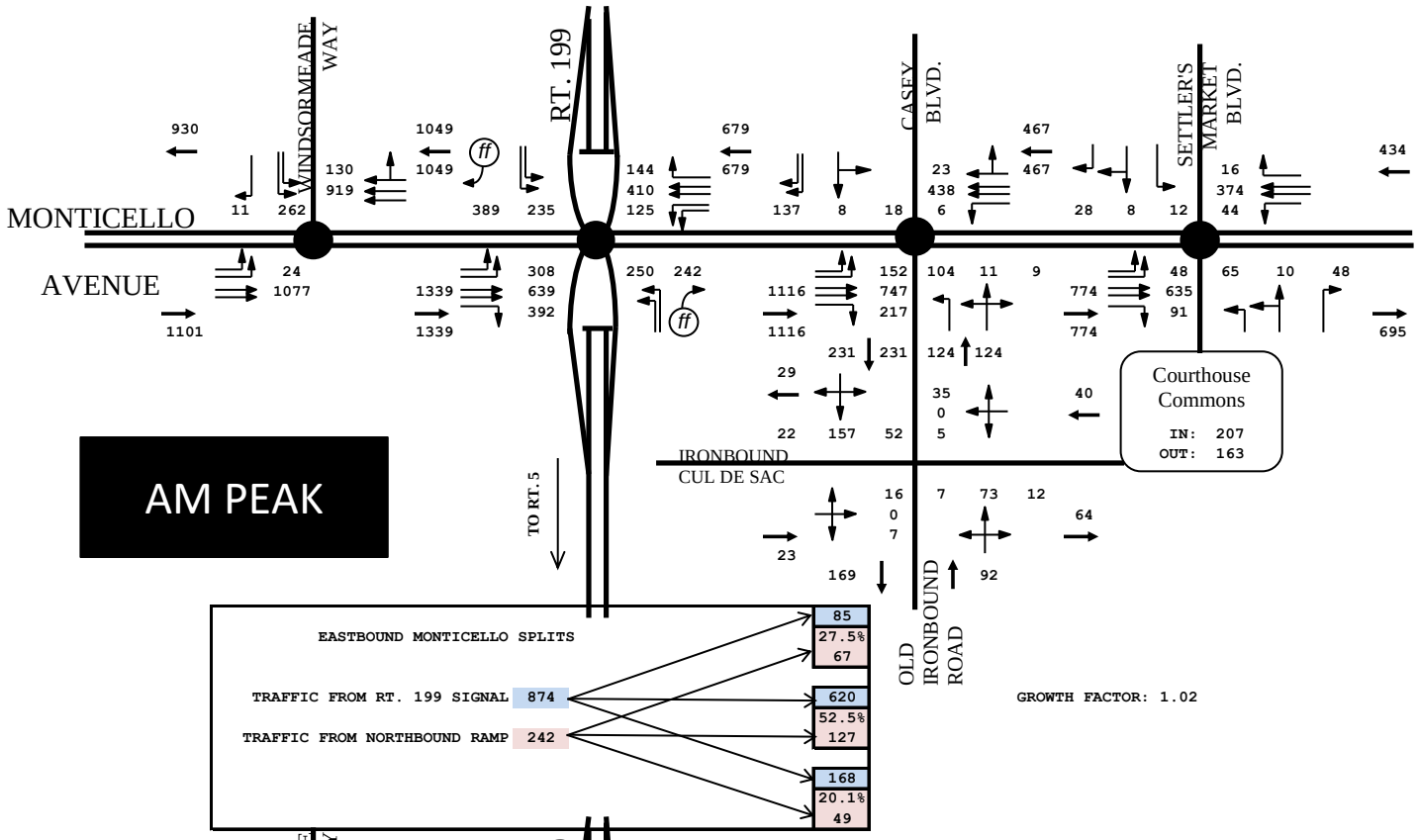
Exhibit 9

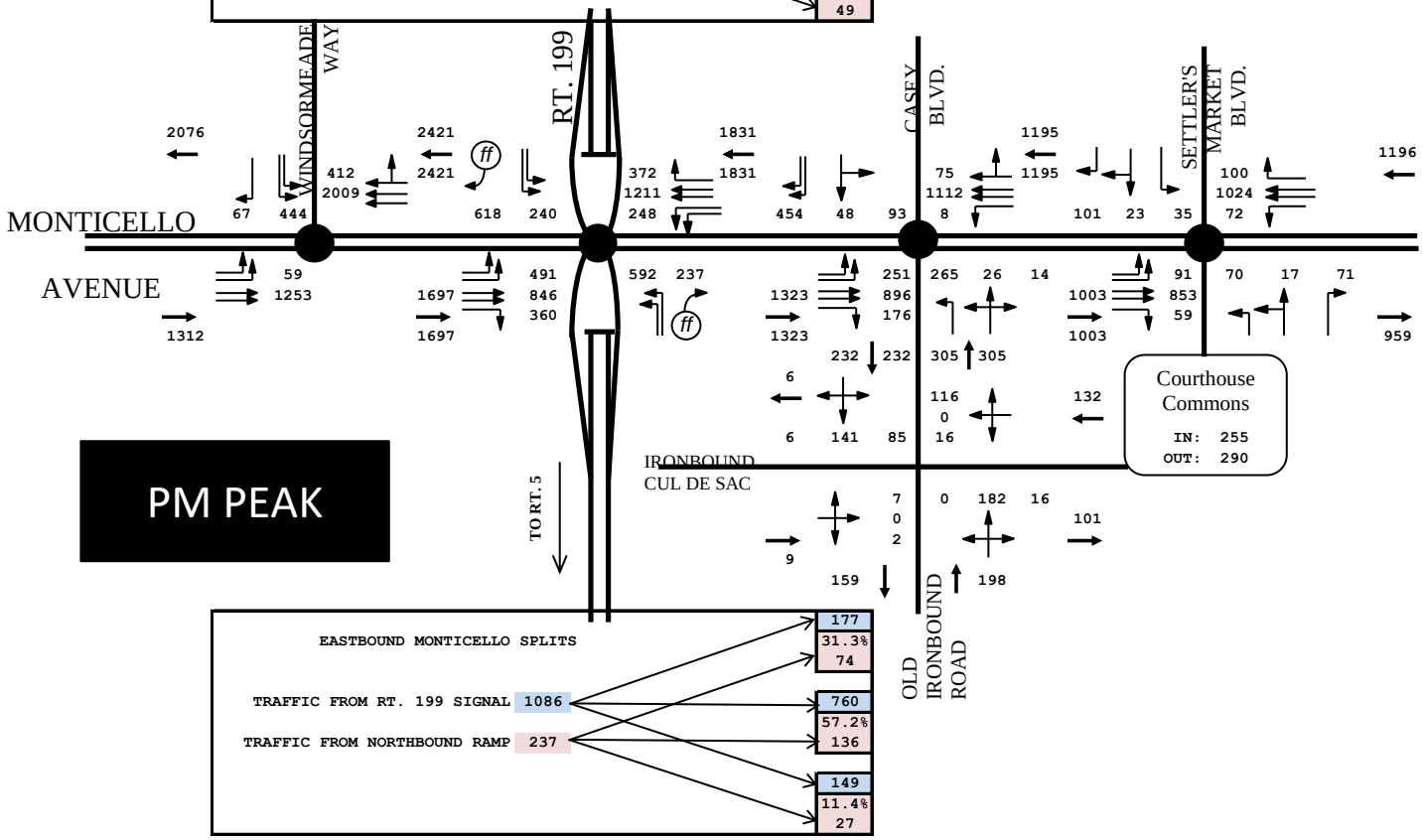


FINAL 2021 COUNT ADJUSTMENT:
COUNTS ON MONTICELLO AT CASEY BLVD./IRONBOUND ROAD AND SETTLERS MARKET INCREASED TO BALANCE WITH COVID ADJUSTMENT COUNTS

DRW Consultants, LLC
804-794-7312

Exhibit 10





2023 BACKGROUND TRAFFIC
GROWTH FACTOR ONLY

DRW Consultants, LLC
804-794-7312

Exhibit 11

VALUE	LAND USE	LAND USE CODE	SQ.FT., OTHER UNITS		WEEKDAY TRIP GENERATION AM PEAK HOUR Enter	Exit	Total	PM PEAK HOUR Enter	Exit	Total	DAILY
TABLE ONE: TRIP GENERATION FOR REMAINING RESIDENTIAL DEVELOPMENT - NEW TOWN SECTIONS 7, 8, 9											
eq.-adj. st.	Single-Family	210	45	units	9	28	37	30	17	47	499
eq.-adj. st.	Multifamily Low Rise	220	67	units	8	25	33	26	15	41	466
eq.-adj. st.	Multifamily Mid Rise	221	0	units	0	0	0	0	0	0	-2
		TOTAL:	112	units	17	53	70	56	32	88	963

TABLE TWO: TRIP DISTRIBUTION

Section 7 & 8 Remaining Residential Trips			17	53	56	32	Study Assignment
External Link	% Distribution						
Longhill Conn.	10%	15%	1	5	6	3	OFF
Ironbound (east to Rt. 60)	5%		1	3	3	2	NETWORK
Monticello Ave. (W&M)	10%	20%	2	5	6	3	Monticello
Strawberry Plains Road	10%		2	5	6	3	East
Rt. 199 (south to Rt. 5)	20%	65%	3	11	11	6	Rt. 199 S.
News Rd. South	5%		1	3	3	2	Monticello
Monticello Ave. West	15%		3	8	8	5	West Of
News Road North	5%		1	3	3	2	WindsorMeade
Rt. 199 (north to Rt. 60)	20%		3	10	10	6	Rt. 199 N.
	100%		17	53	56	32	

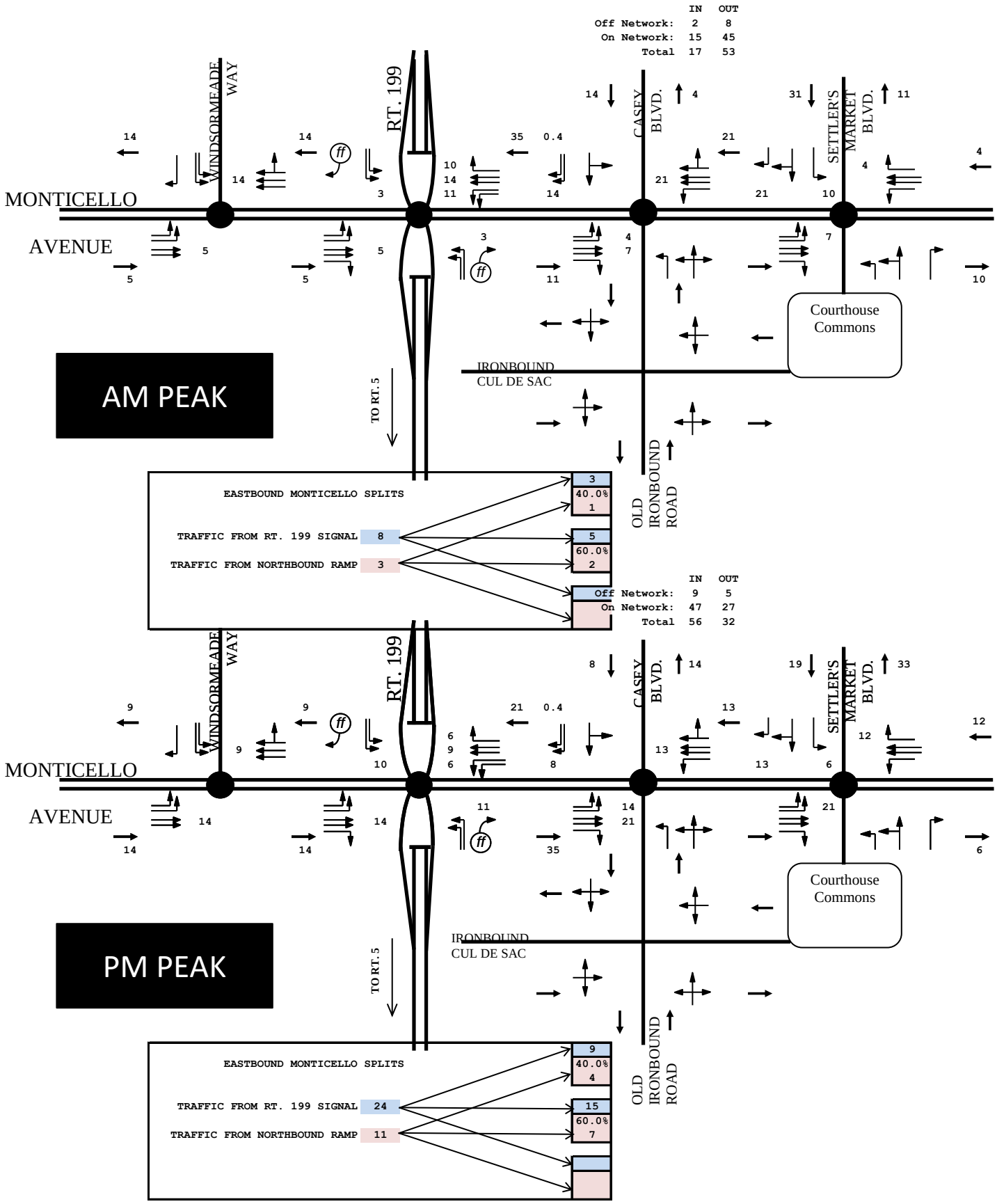
Note: 45 single family detached units as of May 2021 from AES, 67 attached units from JCC as of July 2021..

NEW TOWN SECTIONS 7, 8, 9 REMAINING RESIDENTIAL
TRIP GENERATION AND DISTRIBUTION

DRW Consultants, LLC
804-794-7312

Trip generation rates from Trip Generation Manual, 10th Edition (TGM10) by the Institute of Transportation Engineers (ITE)

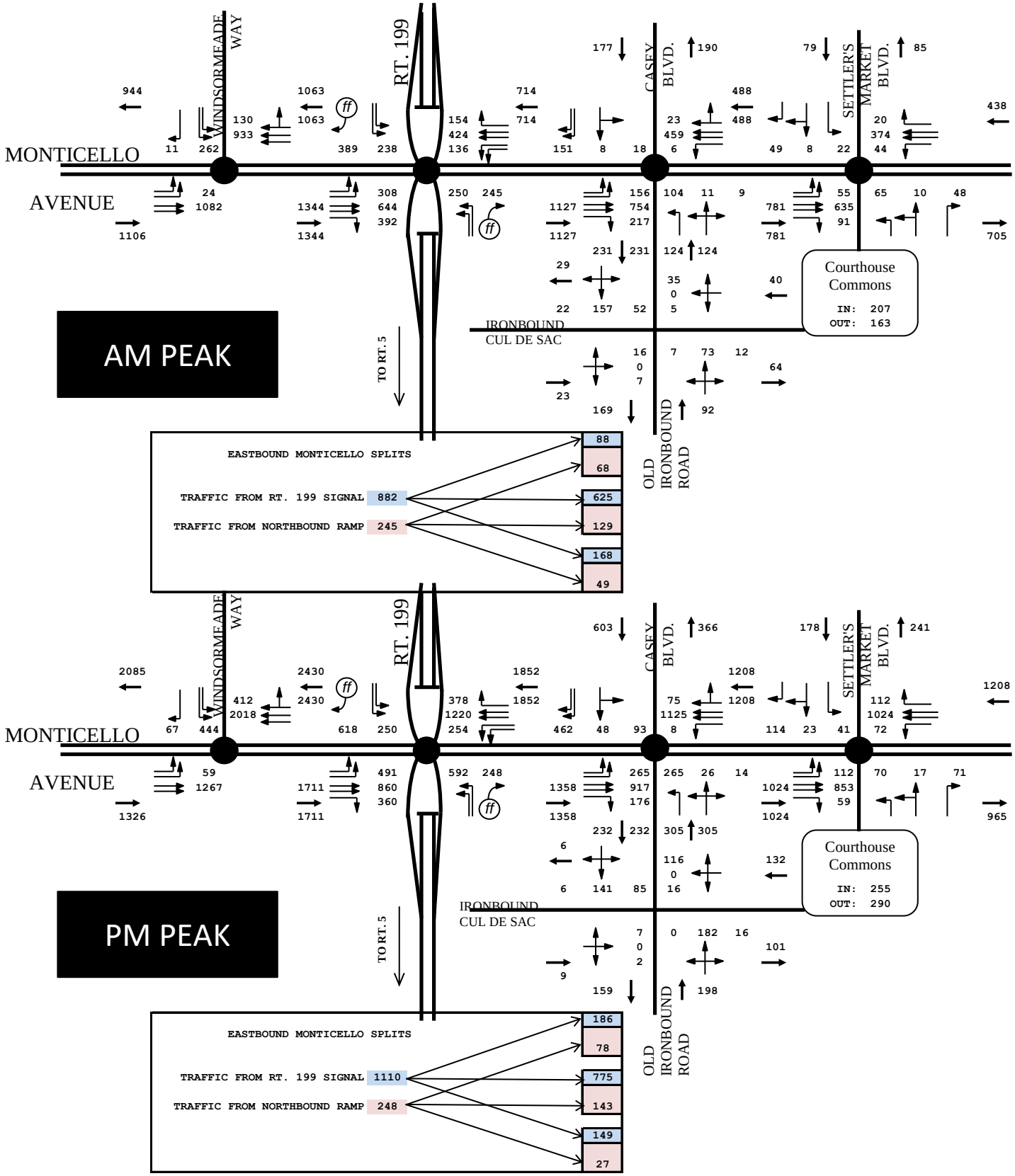
Exhibit 12



NEW TOWN SECTIONS 7, 8 AND 9
REMAINING RESIDENTIAL DEVELOPMENT
TRIP ASSIGNMENTS

DRW Consultants, LLC
804-794-7312

Exhibit 13



2023 BACKGROUND TRAFFIC WITH
REMAINING NEW TOWN SECTIONS 7, 8, 9 RESIDENTIAL

DRW Consultants, LLC
804-794-7312

Exhibit 14

VALUE	LAND USE	LAND USE CODE	SQ.FT., OTHER UNITS	WEEKDAY TRIP GENERATION						
				AM PEAK HOUR			PM PEAK HOUR			DAILY
				Enter	Exit	Total	Enter	Exit	Total	

TABLE ONE : EXISTING ZONING TRIP GENERATION LIMITS

				50	49	99	50	49	99	

TABLE TWO. - PRIMARY TRIP DISTRIBUTION

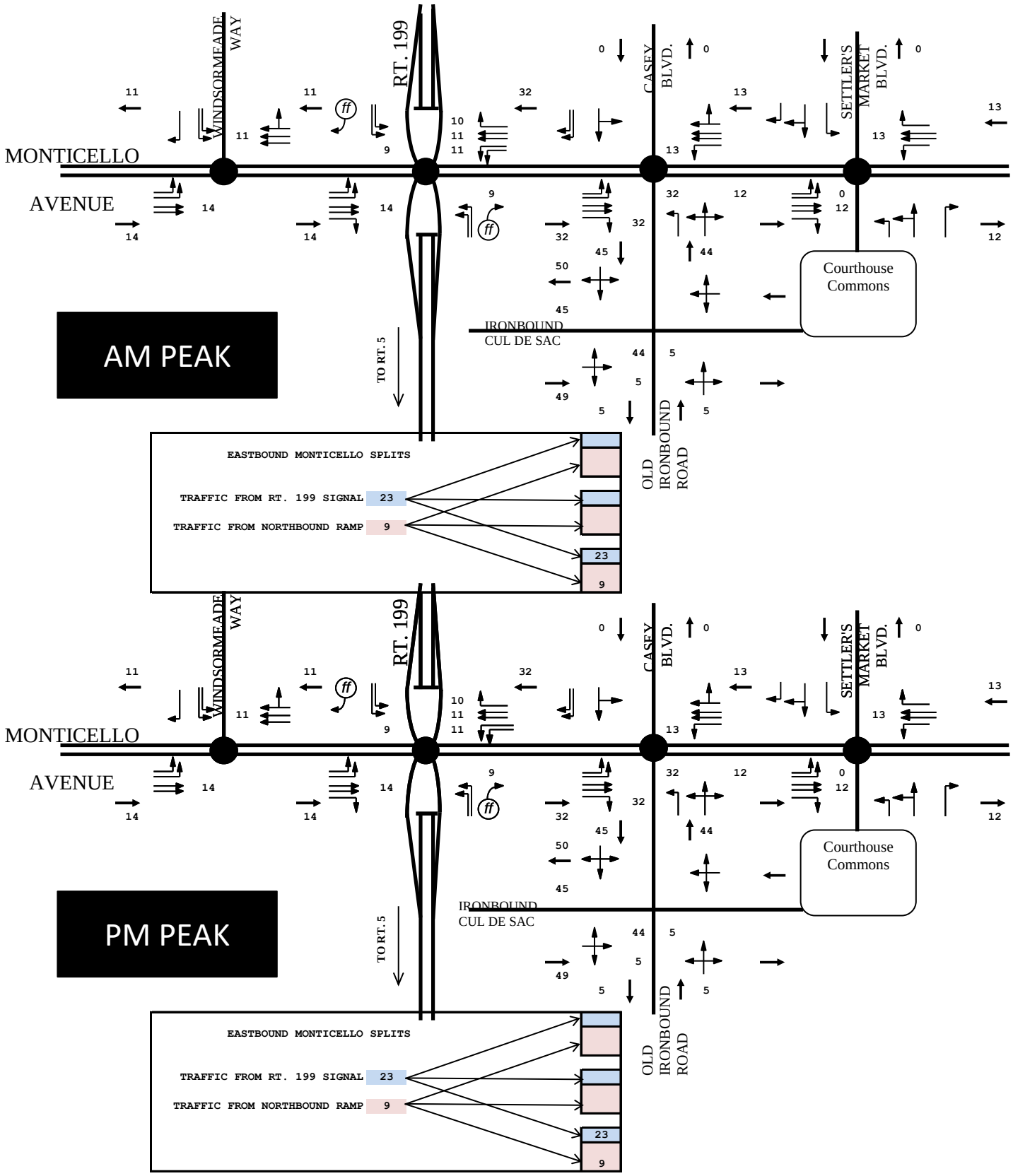
Primary Trips			50	49		50	49	Study Assignment
	External Link	% Distribution						
	Longhill Conn.	10%	5	5		5	5	Monticello East
	Ironbound (east to Rt. 60)	5%	3	2		3	2	
	Monticello Ave. (W&M)	10%	5	5		5	5	
	Strawberry Plains Road	10%	5	5		5	5	Ironbound S.
	Rt. 199 (south to Rt. 5)	20%	9	11		9	11	Rt. 199 S.
	News Rd. South	5%	3	2		3	2	Monticello West Of WindsorMeade
	Alt. Rt. 5	15%	8	7		8	7	
	News Road North	5%	3	2		3	2	
	Rt. 199 (north to Rt. 60)	20%	9	10		9	10	Rt. 199 N.
		100%	50	49		50	49	

IRONBOUND CROSSING - EXISTING ZONING
TRIP GENERATION AND DISTRIBUTION

DRW Consultants, LLC
804-794-7312

Trip generation rates from Trip Generation Manual, 10th Edition (TGM10) by the Institute of Transportation Engineers (ITE)

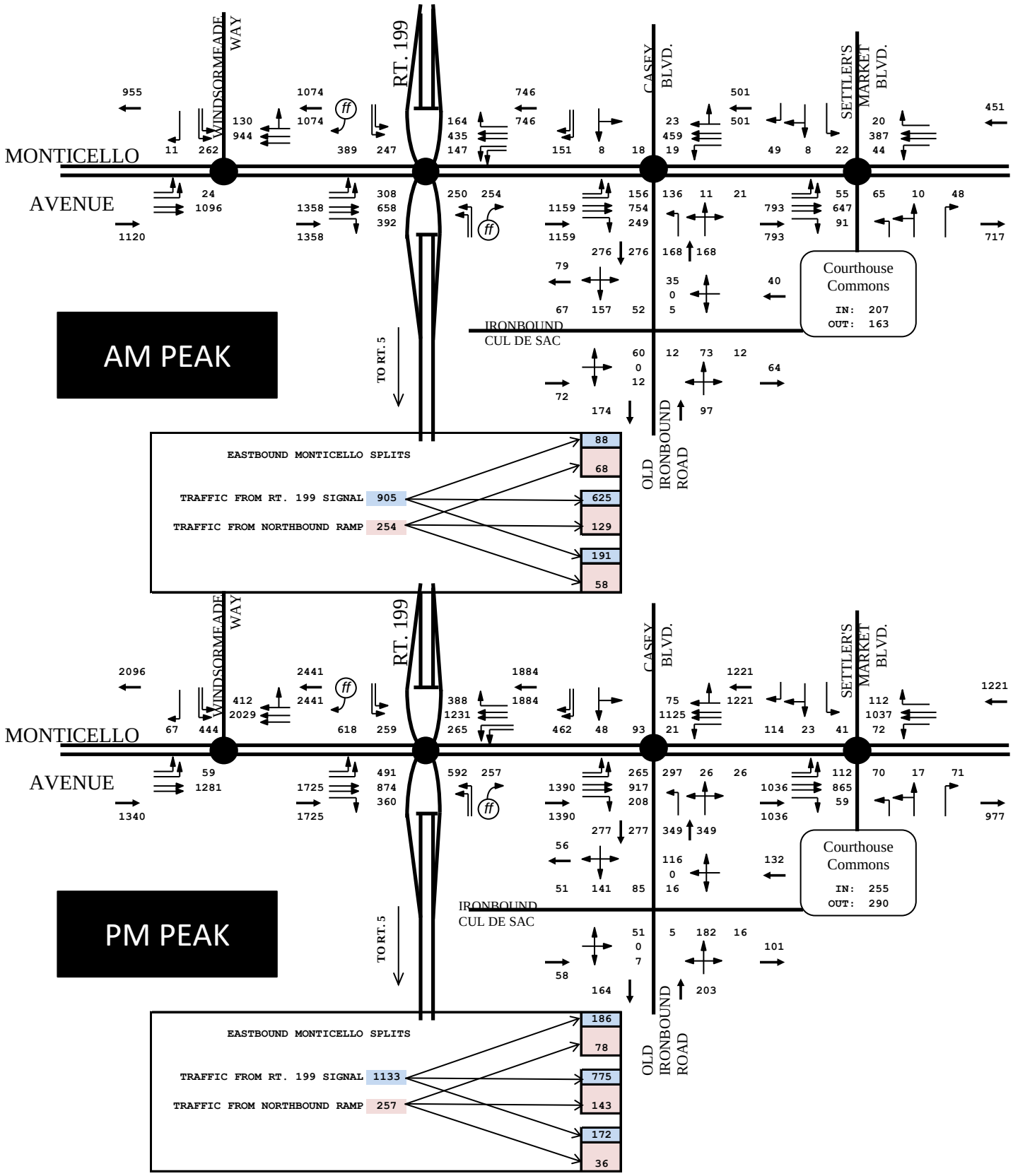
Exhibit 15



IRONBOUND CROSSING EXISTING ZONING
TRIP ASSIGNMENTS

DRW Consultants, LLC
804-794-7312

Exhibit 16



2023 TRAFFIC FORECAST
IRONBOUND CROSSING EXISTING ZONING

DRW Consultants, LLC
804-794-7312

Exhibit 17

VALUE	LAND USE	LAND USE CODE	SQ.FT., OTHER UNITS	WEEKDAY TRIP GENERATION AM PEAK HOUR Enter	Exit	Total	PM PEAK HOUR Enter	Exit	Total	DAILY

TABLE ONE : TRIP GENERATION (SELECTED VALUES IN YELLOW)

eq.-adj. st.	Super Con. Mkt. w/Gas	960	6,049 sq. ft.	283	283	566				
rate-adj. st.	Super Con. Mkt. w/Gas	960	6,049 sq. ft.	251	252	503	209	210	419	5067
rate-adj. st.	Super Con. Mkt. w/Gas	960	12 v.f.p.	168	169	337	138	138	276	2766
average sq. ft. and v.f.p.				226	226	452	174	174	348	3917

TABLE TWO - PASS/PRIMARY TRIPS

Pass By Trips (LUC 853)	AM/PM	63%	66%	142	142	284	115	115	230
Primary (New) Trips				84	84	168	59	59	118

TABLE THREE - PRIMARY TRIP DISTRIBUTION

Primary Trips			84	84	59	59	Study Assignment
External Link	% Distribution						
Longhill Conn.	10%		9	9	5	5	Monticello East
Ironbound (east to Rt. 60)	5%		4	4	3	3	
Monticello Ave. (W&M)	10%		8	8	6	6	
Strawberry Plains Road	10%		8	8	6	6	Ironbound S.
Rt. 199 (south to Rt. 5)	20%		17	17	12	12	Rt. 199 S.
News Rd. South	5%		4	4	3	3	Monticello West Of WindsorMeade
Alt. Rt. 5	15%		13	13	9	9	
News Road North	5%		4	4	3	3	
Rt. 199 (north to Rt. 60)	20%		17	17	12	12	Rt. 199 N.
	100%		84	84	59	59	

TABLE FOUR - PASS BY TRIP DISTRIBUTION

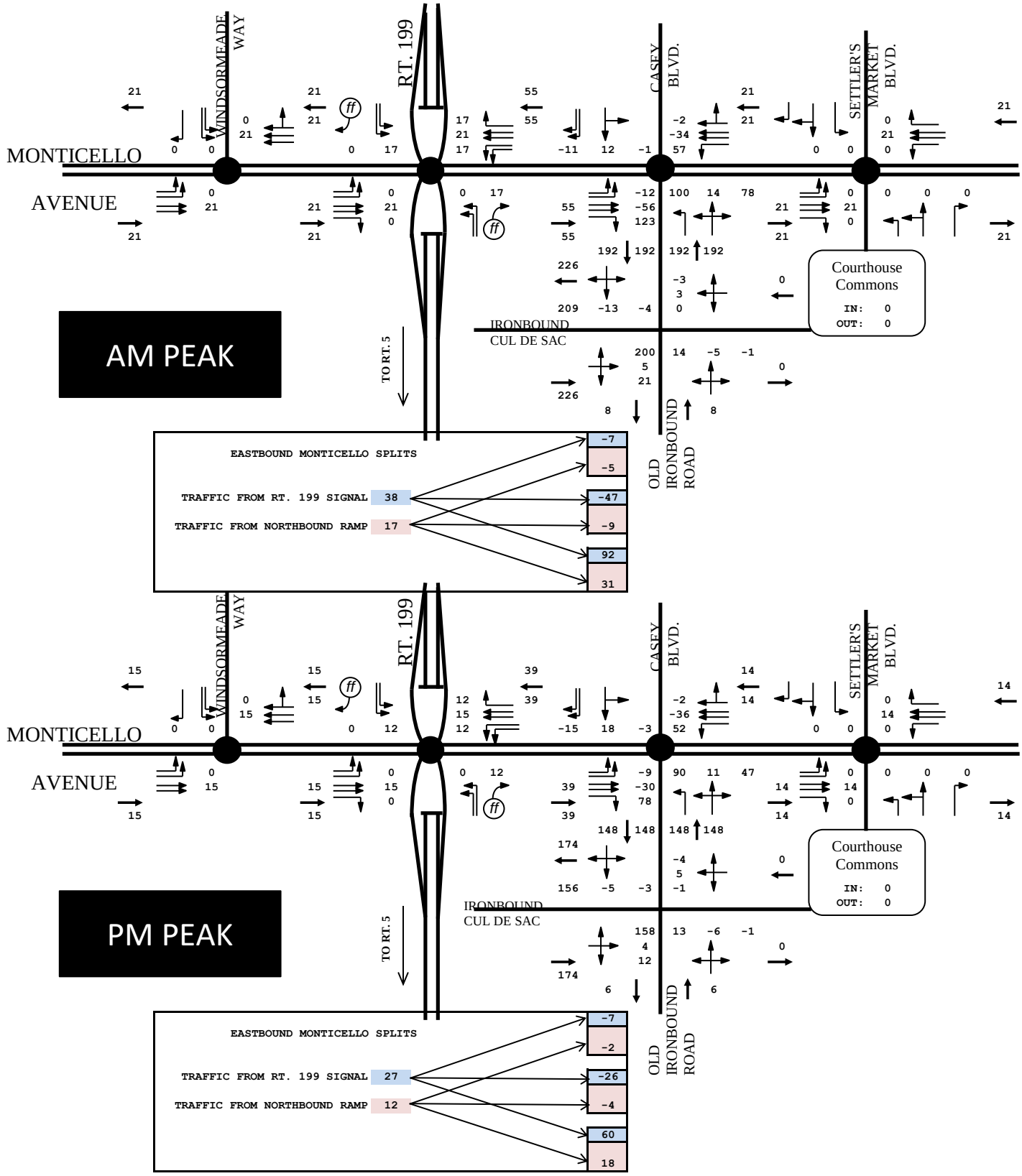
				142	142	284	115	115	230
	AM Peak Hour Entering Traffic				PM Peak Hour Entering Traffic				
Direction	Volumes	%	Trips	Subtotal		Vol.	%	Trips	Subtotal
OFFSITE MONTICELLO/CASEY/IRONBOUND				116					95
Mont EB @ Casey LT	156	8.2%	12			265	7.6%	9	
Mont EB @ Casey Thru	754	39.8%	56			917	26.3%	30	
Casey SB @ Mont. RT	151	8.0%	11			462	13.2%	15	
Casey SB @ Mont. LT	18	0.9%	1			93	2.7%	3	
Mont. WB @ Casey Thru	459	24.2%	34			1125	32.2%	36	
Mont. WB @ Casey RT	23	1.2%	2	Subtotal		75	2.1%	2	Subtotal
AT SITE IRONBOUND/IRONBOUND CUL-DE-SAC				26					20
Cthouse Com. @ Ironbd. LT	5	0.3%	0			16	0.5%	1	
Cthouse Com. @ Ironbd. RT	35	1.8%	3			116	3.3%	4	
Old Ironbd NB @ CulDeSac Thru	73	3.9%	5			182	5.2%	6	
Old Ironbd NB @ CulDeSac RT	12	0.6%	1			16	0.5%	1	
Old Ironbd SB @ CulDeSac Thru	157	8.3%	13			141	4.0%	5	
Old Ironbd SB @ CulDeSac LT	52	2.7%	4			85	2.4%	3	
	1895	100.0%	142			3493	100%	115	

IRONBOUND CROSSING PROPOSED SUP
TRIP GENERATION AND DISTRIBUTION

DRW Consultants, LLC
804-794-7312

Trip generation rates from Trip Generation Manual, 10th Edition (TGM10) by the Institute of Transportation Engineers (ITE)

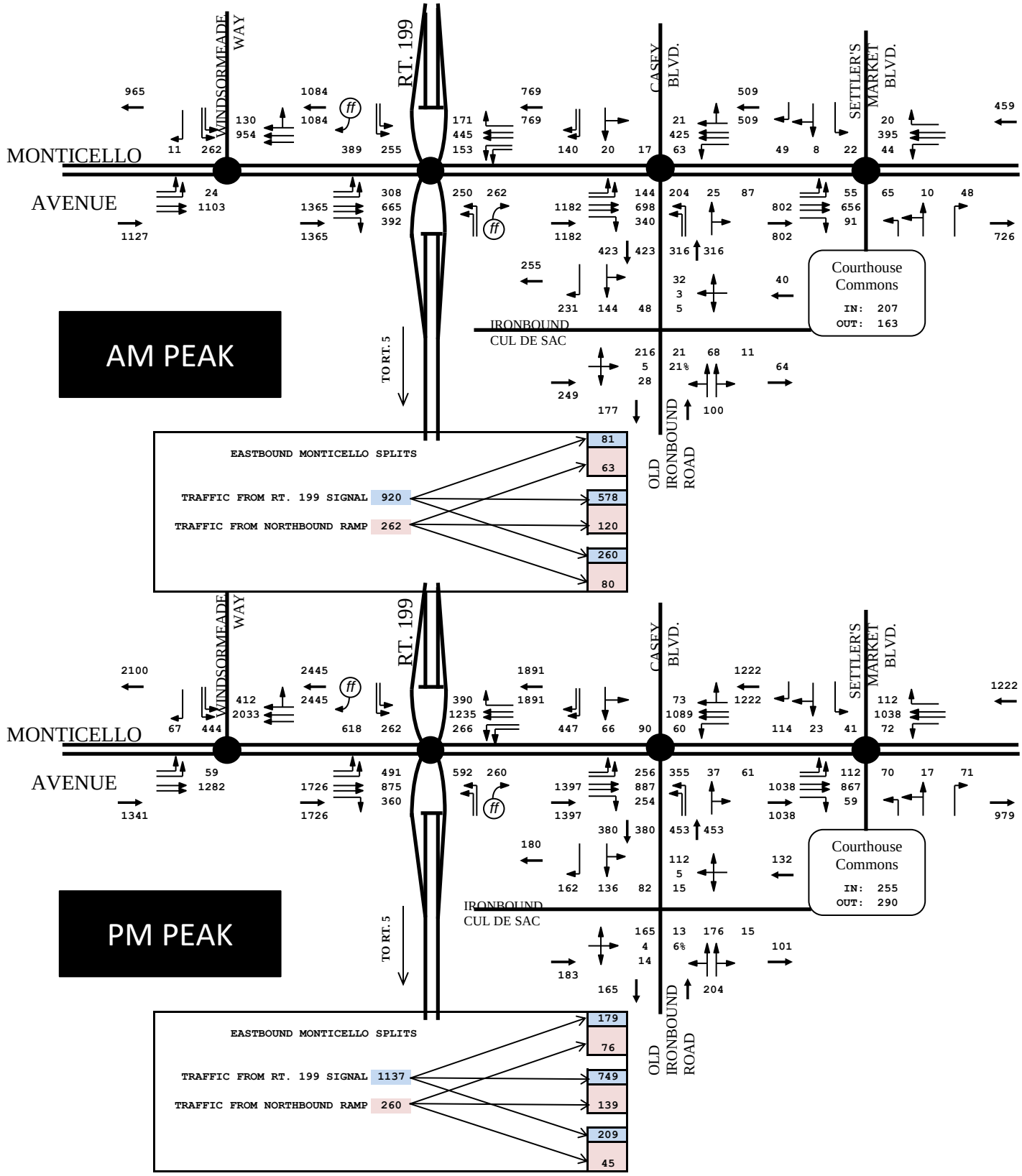
Exhibit 18



IRONBOUND CROSSING
ALL TRIP ASSIGNMENTS FOR PROPOSED SUP

DRW Consultants, LLC
804-794-7312

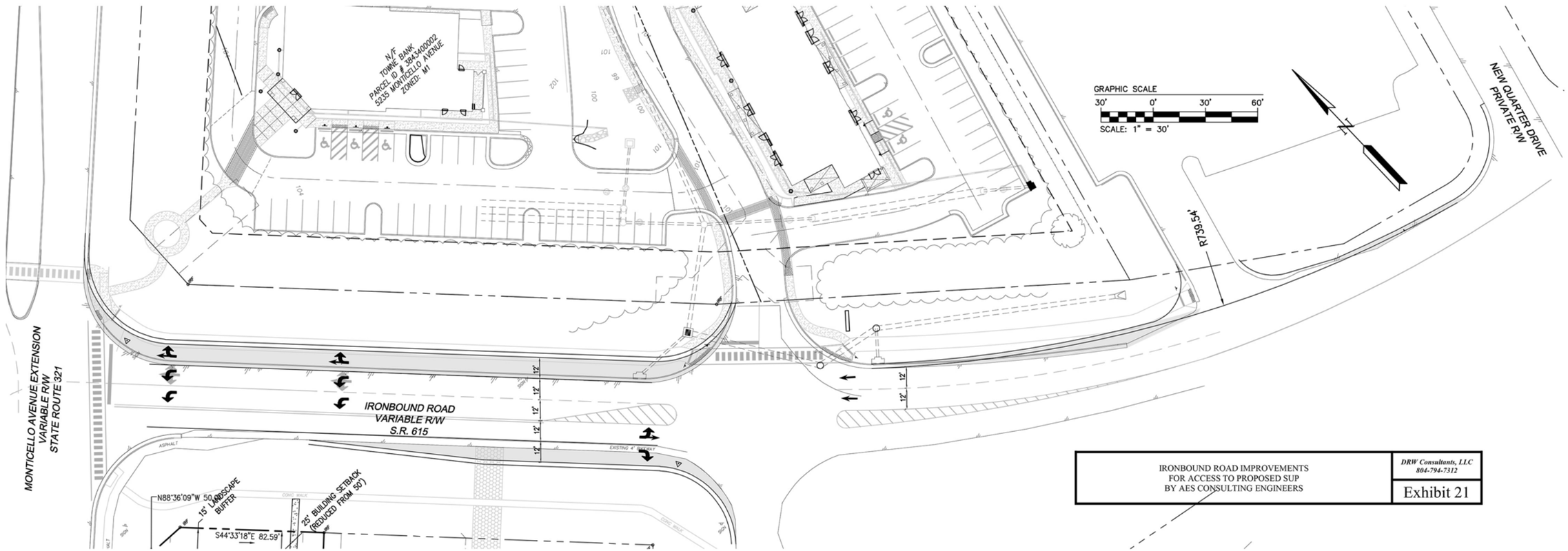
Exhibit 19



2023 TRAFFIC FORECAST
IRONBOUND CROSSING PROPOSED SUP

DRW Consultants, LLC
804-794-7312

Exhibit 20



IRONBOUND ROAD IMPROVEMENTS
FOR ACCESS TO PROPOSED SUP
BY AES CONSULTING ENGINEERS

DRW Consultants, LLC
804-794-7312

Exhibit 21

APPENDIX EXHIBITS

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	1	0	1	0	2	1	13	3	0	17	5	20	2	0	27	46
07:15 AM	0	0	1	0	1	1	0	2	0	3	0	2	2	0	4	5	31	3	0	39	47
07:30 AM	1	0	0	0	1	0	0	2	0	2	3	11	2	0	16	4	33	2	0	39	58
07:45 AM	2	0	0	0	2	2	0	0	0	2	0	17	1	0	18	2	55	4	0	61	83
Total	3	0	1	0	4	4	0	5	0	9	4	43	8	0	55	16	139	11	0	166	234
08:00 AM	1	0	1	0	2	2	0	7	0	9	2	12	3	0	17	8	38	3	0	49	77
08:15 AM	4	0	3	0	7	0	0	6	0	6	1	15	3	0	19	15	36	7	0	58	90
08:30 AM	6	0	2	0	8	2	0	10	0	12	2	18	1	0	21	16	31	7	0	54	95
08:45 AM	4	0	0	0	4	1	0	11	0	12	1	17	5	0	23	12	31	2	0	45	84
Total	15	0	6	0	21	5	0	34	0	39	6	62	12	0	80	51	136	19	0	206	346
Grand Total	18	0	7	0	25	9	0	39	0	48	10	105	20	0	135	67	275	30	0	372	580
Apprch %	72	0	28	0		18.8	0	81.2	0		7.4	77.8	14.8	0		18	73.9	8.1	0		
Total %	3.1	0	1.2	0	4.3	1.6	0	6.7	0	8.3	1.7	18.1	3.4	0	23.3	11.6	47.4	5.2	0	64.1	

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	1	0	1	2	**2**	0	7	9	**2**	12	3	17	8	**38**	3	49	77
08:15 AM	4	0	**3**	7	0	0	6	6	1	15	3	19	15	36	**7**	**58**	90
08:30 AM	**6**	0	2	**8**	2	0	10	**12**	2	**18**	1	21	**16**	31	7	54	**95**
08:45 AM	4	0	0	4	1	0	**11**	12	1	17	**5**	**23**	12	31	2	45	84
Total Volume	15	0	6	21	5	0	34	39	6	62	12	80	51	136	19	206	346
% App. Total	71.4	0	28.6		12.8	0	87.2		7.5	77.5	15		24.8	66	9.2		
PHF	.625	.000	.500	.656	.625	.000	.773	.813	.750	.861	.600	.870	.797	.895	.679	.888	.911

Exhibit A-1

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	2	3
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	4
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
Total	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	0	2	1	0	3	11
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	1	0	0	1	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	5	5
08:30 AM	0	0	1	0	1	0	0	0	0	0	0	3	0	0	3	0	3	1	0	4	8
08:45 AM	1	0	0	0	1	0	0	0	0	0	0	3	0	0	3	0	3	0	0	3	7
Total	1	0	1	0	2	0	0	0	0	0	1	7	0	0	8	0	10	3	0	13	23
Grand Total	1	0	1	0	2	0	0	0	0	0	1	15	0	0	16	0	12	4	0	16	34
Apprch %	50	0	50	0		0	0	0	0		6.2	93.8	0	0		0	75	25	0		
Total %	2.9	0	2.9	0	5.9	0	0	0	0	0	2.9	44.1	0	0	47.1	0	35.3	11.8	0	47.1	

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	0	0	0	0	**1**	1	0	2	0	1	0	1	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**	**2**	**5**	5
08:30 AM	0	0	**1**	**1**	0	0	0	0	0	**3**	0	**3**	0	3	1	4	**8**
08:45 AM	**1**	0	0	1	0	0	0	0	0	3	0	3	0	3	0	3	7
Total Volume	1	0	1	2	0	0	0	0	1	7	0	8	0	10	3	13	23
% App. Total	50	0	50		0	0	0		12.5	87.5	0		0	76.9	23.1		
PHF	.250	.000	.250	.500	.000	.000	.000	.000	.250	.583	.000	.667	.000	.833	.375	.650	.719

Exhibit A-2

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit A-3

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	1	0	1	0	2	1	14	3	0	18	5	21	3	0	29	49
07:15 AM	0	0	1	0	1	1	0	2	0	3	0	3	2	0	5	5	31	3	0	39	48
07:30 AM	1	0	0	0	1	0	0	2	0	2	3	14	2	0	19	4	34	2	0	40	62
07:45 AM	2	0	0	0	2	2	0	0	0	2	0	20	1	0	21	2	55	4	0	61	86
Total	3	0	1	0	4	4	0	5	0	9	4	51	8	0	63	16	141	12	0	169	245
08:00 AM	1	0	1	0	2	2	0	7	0	9	3	13	3	0	19	8	39	3	0	50	80
08:15 AM	4	0	3	0	7	0	0	6	0	6	1	15	3	0	19	15	39	9	0	63	95
08:30 AM	6	0	3	0	9	2	0	10	0	12	2	21	1	0	24	16	34	8	0	58	103
08:45 AM	5	0	0	0	5	1	0	11	0	12	1	20	5	0	26	12	34	2	0	48	91
Total	16	0	7	0	23	5	0	34	0	39	7	69	12	0	88	51	146	22	0	219	369
Grand Total	19	0	8	0	27	9	0	39	0	48	11	120	20	0	151	67	287	34	0	388	614
Apprch %	70.4	0	29.6	0		18.8	0	81.2	0		7.3	79.5	13.2	0		17.3	74	8.8	0		
Total %	3.1	0	1.3	0	4.4	1.5	0	6.4	0	7.8	1.8	19.5	3.3	0	24.6	10.9	46.7	5.5	0	63.2	
Cars	18	0	7	0	25	9	0	39	0	48	10	105	20	0	135	67	275	30	0	372	580
% Cars	94.7	0	87.5	0	92.6	100	0	100	0	100	90.9	87.5	100	0	89.4	100	95.8	88.2	0	95.9	94.5
Trucks	1	0	1	0	2	0	0	0	0	0	1	15	0	0	16	0	12	4	0	16	34
% Trucks	5.3	0	12.5	0	7.4	0	0	0	0	0	9.1	12.5	0	0	10.6	0	4.2	11.8	0	4.1	5.5

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	1	0	1	2	**2**	0	7	9	**3**	13	3	19	8	**39**	3	50	80
08:15 AM	4	0	**3**	7	0	0	6	6	1	15	3	19	15	39	**9**	**63**	95
08:30 AM	**6**	0	3	**9**	2	0	10	**12**	2	**21**	1	24	**16**	34	8	58	**103**
08:45 AM	5	0	0	5	1	0	**11**	12	1	20	**5**	**26**	12	34	2	48	91
Total Volume	16	0	7	23	5	0	34	39	7	69	12	88	51	146	22	219	369
% App. Total	69.6	0	30.4		12.8	0	87.2		8	78.4	13.6		23.3	66.7	10		
PHF	.667	.000	.583	.639	.625	.000	.773	.813	.583	.821	.600	.846	.797	.936	.611	.869	.896

Exhibit A-4

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	1	0	0	0	1	4	0	20	0	24	0	49	4	0	53	21	28	1	0	50	128
04:15 PM	0	0	0	0	0	6	0	19	0	25	0	39	3	0	42	15	24	1	0	40	107
04:30 PM	3	0	0	0	3	3	0	17	0	20	0	36	4	0	40	14	30	2	0	46	109
04:45 PM	3	0	0	0	3	3	0	19	0	22	0	29	5	0	34	20	21	2	0	43	102
Total	7	0	0	0	7	16	0	75	0	91	0	153	16	0	169	70	103	6	0	179	446
05:00 PM	0	0	1	0	1	5	0	23	0	28	1	40	3	0	44	13	12	1	0	26	99
05:15 PM	1	0	4	0	5	2	0	23	0	25	1	37	2	0	40	15	22	3	0	40	110
05:30 PM	1	0	1	0	2	2	0	20	0	22	0	26	5	0	31	13	20	2	0	35	90
05:45 PM	1	0	0	0	1	6	0	17	0	23	0	11	5	0	16	19	16	1	0	36	76
Total	3	0	6	0	9	15	0	83	0	98	2	114	15	0	131	60	70	7	0	137	375
Grand Total	10	0	6	0	16	31	0	158	0	189	2	267	31	0	300	130	173	13	0	316	821
Apprch %	62.5	0	37.5	0		16.4	0	83.6	0		0.7	89	10.3	0		41.1	54.7	4.1	0		
Total %	1.2	0	0.7	0	1.9	3.8	0	19.2	0	23	0.2	32.5	3.8	0	36.5	15.8	21.1	1.6	0	38.5	

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	0	0	1	4	0	**20**	24	0	**49**	4	**53**	**21**	28	1	**50**	**128**
04:15 PM	0	0	0	0	**6**	0	19	**25**	0	39	3	42	15	24	1	40	107
04:30 PM	**3**	0	0	**3**	3	0	17	20	0	36	4	40	14	**30**	**2**	46	109
04:45 PM	3	0	0	3	3	0	19	22	0	29	**5**	34	20	21	2	43	102
Total Volume	7	0	0	7	16	0	75	91	0	153	16	169	70	103	6	179	446
% App. Total	100	0	0		17.6	0	82.4		0	90.5	9.5		39.1	57.5	3.4		
PHF	.583	.000	.000	.583	.667	.000	.938	.910	.000	.781	.800	.797	.833	.858	.750	.895	.871

Exhibit A-5

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	4
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	4	0	0	4	5
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	4
Grand Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	7	0	0	7	9
Apprch %	0	0	0	0		0	0	0	0		0	100	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	22.2	0	0	22.2	0	77.8	0	0	77.8	

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	**3**	0	**3**	**4**
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
Total Volume	0	0	0	0	0	0	0	0	0	2	0	2	0	5	0	5	7
% App. Total	0	0	0		0	0	0		0	100	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.417	.000	.417	.438

Exhibit A-6

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit A-7

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	1	0	0	0	1	4	0	20	0	24	0	49	4	0	53	21	28	1	0	50	128
04:15 PM	0	0	0	0	0	6	0	19	0	25	0	40	3	0	43	15	27	1	0	43	111
04:30 PM	3	0	0	0	3	3	0	17	0	20	0	36	4	0	40	14	30	2	0	46	109
04:45 PM	3	0	0	0	3	3	0	19	0	22	0	29	5	0	34	20	22	2	0	44	103
Total	7	0	0	0	7	16	0	75	0	91	0	154	16	0	170	70	107	6	0	183	451
05:00 PM	0	0	1	0	1	5	0	23	0	28	1	41	3	0	45	13	13	1	0	27	101
05:15 PM	1	0	4	0	5	2	0	23	0	25	1	37	2	0	40	15	22	3	0	40	110
05:30 PM	1	0	1	0	2	2	0	20	0	22	0	26	5	0	31	13	20	2	0	35	90
05:45 PM	1	0	0	0	1	6	0	17	0	23	0	11	5	0	16	19	18	1	0	38	78
Total	3	0	6	0	9	15	0	83	0	98	2	115	15	0	132	60	73	7	0	140	379
Grand Total	10	0	6	0	16	31	0	158	0	189	2	269	31	0	302	130	180	13	0	323	830
Apprch %	62.5	0	37.5	0		16.4	0	83.6	0		0.7	89.1	10.3	0		40.2	55.7	4	0		
Total %	1.2	0	0.7	0	1.9	3.7	0	19	0	22.8	0.2	32.4	3.7	0	36.4	15.7	21.7	1.6	0	38.9	
Cars	10	0	6	0	16	31	0	158	0	189	2	267	31	0	300	130	173	13	0	316	821
% Cars	100	0	100	0	100	100	0	100	0	100	100	99.3	100	0	99.3	100	96.1	100	0	97.8	98.9
Trucks	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	7	0	0	7	9
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0.7	0	0	0.7	0	3.9	0	0	2.2	1.1

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	0	0	1	4	0	**20**	24	0	**49**	4	**53**	**21**	28	1	**50**	**128**
04:15 PM	0	0	0	0	**6**	0	19	**25**	0	40	3	43	15	27	1	43	111
04:30 PM	**3**	0	0	**3**	3	0	17	20	0	36	4	40	14	**30**	**2**	46	109
04:45 PM	3	0	0	3	3	0	19	22	0	29	**5**	34	20	22	2	44	103
Total Volume	7	0	0	7	16	0	75	91	0	154	16	170	70	107	6	183	451
% App. Total	100	0	0		17.6	0	82.4		0	90.6	9.4		38.3	58.5	3.3		
PHF	.583	.000	.000	.583	.667	.000	.938	.910	.000	.786	.800	.802	.833	.892	.750	.915	.881

Exhibit A-8

File Name: R:\Jobs 2021 Final\21-149.va_RT 199_Monricello_Ironbound Counts, Group One District(Final-NoTrafX)\P
Start Date: 4/13/2021
Start Time: 7:00:00 AM
Site Code:
Comment 1:
Comment 2:
Comment 3:
Comment 4:

	Ironbound Rd Southbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Driveway Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00:00 AM	3	21	5	0	1	0	1	0	3	14	1	0	0	0	0	0
7:15:00 AM	3	31	5	0	2	0	1	0	2	3	0	0	1	0	0	0
7:30:00 AM	2	34	4	0	2	0	0	0	2	14	3	0	0	0	1	0
7:45:00 AM	4	55	2	0	0	0	2	0	1	20	0	0	0	0	2	0
8:00:00 AM	3	39	8	0	7	0	2	0	3	13	3	0	1	0	1	0
8:15:00 AM	9	39	15	0	6	0	0	0	3	15	1	0	3	0	4	0
8:30:00 AM	8	34	16	0	10	0	2	0	1	21	2	0	3	0	6	0
9:00:00 AM	2	34	12	0	11	0	1	0	5	20	1	0	0	0	5	0
TOTAL	34	287	67	0	39	0	9	0	20	120	11	0	8	0	19	0
8-9 TOTAL	22	146	51	0	34	0	5	0	12	69	7	0	7	0	16	0
%T	14%	7%	0%	#####	0%	#####	0%	#####	0%	10%	14%	#####	14%	#####	6%	#####

EXHIBIT A-9

File Name: R:\Jobs 2021 Final\21-149.va_RT 199_Monricello_Ironbound Counts, Group One District(Final-NoTrafX)\P
Start Date: 4/13/2021
Start Time: 4:00:00 PM
Site Code:
Comment 1:
Comment 2:
Comment 3:
Comment 4:

	Ironbound Rd Southbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Driveway Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
4:00:00 PM	1	28	21	0	20	0	4	0	4	49	0	0	0	0	1	0
4:15:00 PM	1	27	15	0	19	0	6	0	3	40	0	0	0	0	0	0
4:30:00 PM	2	30	14	0	17	0	3	0	4	36	0	0	0	0	3	0
4:45:00 PM	2	22	20	0	19	0	3	0	5	29	0	0	0	0	3	0
5:00:00 PM	1	13	13	0	23	0	5	0	3	41	1	0	1	0	0	0
5:15:00 PM	3	22	15	0	23	0	2	0	2	37	1	0	4	0	1	0
5:30:00 PM	2	20	13	0	20	0	2	0	5	26	0	0	1	0	1	0
5:45:00 PM	1	18	19	0	17	0	6	0	5	11	0	0	0	0	1	0
TOTAL	13	180	130	0	158	0	31	0	31	269	2	0	6	0	10	0
4-5 TOTAL	6	107	70	0	75	0	16	0	16	154	0	0	0	0	7	0
%T	0%	4%	0%	0	0%	#####	0%	#####	0%	1%	#####	#####	#####	#####	0%	#####

EXHIBIT A-10

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	13	82	26	0	121	1	64	1	1	67	10	3	1	0	14	0	0	21	0	21	223
07:15 AM	33	118	39	3	193	0	55	2	1	58	5	0	0	0	5	2	0	27	0	29	285
07:30 AM	25	141	40	0	206	0	68	2	0	70	11	3	0	0	14	3	0	24	0	27	317
07:45 AM	42	199	61	0	302	0	59	2	0	61	12	4	3	0	19	1	0	22	0	23	405
Total	113	540	166	3	822	1	246	7	2	256	38	10	4	0	52	6	0	94	0	100	1230
08:00 AM	25	162	46	0	233	1	101	1	0	103	17	2	2	0	21	5	3	28	0	36	393
08:15 AM	34	199	52	0	285	4	91	6	0	101	17	1	2	0	20	5	1	27	0	33	439
08:30 AM	41	185	53	0	279	0	96	5	0	101	30	2	2	0	34	1	1	31	1	34	448
08:45 AM	40	163	43	0	246	0	107	9	0	116	26	5	3	0	34	3	3	39	0	45	441
Total	140	709	194	0	1043	5	395	21	0	421	90	10	9	0	109	14	8	125	1	148	1721
Grand Total	253	1249	360	3	1865	6	641	28	2	677	128	20	13	0	161	20	8	219	1	248	2951
Apprch %	13.6	67	19.3	0.2		0.9	94.7	4.1	0.3		79.5	12.4	8.1	0		8.1	3.2	88.3	0.4		
Total %	8.6	42.3	12.2	0.1	63.2	0.2	21.7	0.9	0.1	22.9	4.3	0.7	0.4	0	5.5	0.7	0.3	7.4	0	8.4	

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	25	162	46	233	1	101	1	103	17	2	2	21	**5**	**3**	28	36	393
08:15 AM	34	**199**	52	**285**	**4**	91	6	101	17	1	2	20	5	1	27	33	439
08:30 AM	**41**	185	**53**	279	0	96	5	101	**30**	2	2	**34**	1	1	31	33	**447**
08:45 AM	40	163	43	246	0	**107**	**9**	**116**	26	**5**	**3**	34	3	3	**39**	**45**	441
Total Volume	140	709	194	1043	5	395	21	421	90	10	9	109	14	8	125	147	1720
% App. Total	13.4	68	18.6		1.2	93.8	5		82.6	9.2	8.3		9.5	5.4	85		
PHF	.854	.891	.915	.915	.313	.923	.583	.907	.750	.500	.750	.801	.700	.667	.801	.817	.962

Exhibit B-1

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	1	0	1	0	2	1	1	0	0	2	1	0	0	0	1	0	0	0	0	0	5
07:15 AM	1	2	0	1	4	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	8
07:30 AM	1	3	2	0	6	0	4	0	0	4	3	0	0	0	3	0	0	1	0	1	14
07:45 AM	1	1	0	0	2	0	2	0	0	2	3	0	0	0	3	0	0	2	0	2	9
Total	4	6	3	1	14	1	10	0	0	11	8	0	0	0	8	0	0	3	0	3	36
08:00 AM	1	3	1	0	5	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	8
08:15 AM	1	2	4	0	7	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	9
08:30 AM	1	2	4	0	7	0	2	1	0	3	2	1	0	0	3	0	0	1	0	1	14
08:45 AM	0	2	2	0	4	1	5	0	0	6	5	0	0	0	5	0	0	3	0	3	18
Total	3	9	11	0	23	1	10	1	0	12	8	1	0	0	9	1	0	4	0	5	49
Grand Total	7	15	14	1	37	2	20	1	0	23	16	1	0	0	17	1	0	7	0	8	85
Apprch %	18.9	40.5	37.8	2.7		8.7	87	4.3	0		94.1	5.9	0	0		12.5	0	87.5	0		
Total %	8.2	17.6	16.5	1.2	43.5	2.4	23.5	1.2	0	27.1	18.8	1.2	0	0	20	1.2	0	8.2	0	9.4	

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**1**	**3**	1	5	0	2	0	2	1	0	0	1	0	0	0	0	8
08:15 AM	1	2	**4**	**7**	0	1	0	1	0	0	0	0	**1**	0	0	1	9
08:30 AM	1	2	4	7	0	2	**1**	3	2	**1**	0	3	0	0	1	1	14
08:45 AM	0	2	2	4	**1**	**5**	0	**6**	**5**	0	0	**5**	0	0	**3**	**3**	**18**
Total Volume	3	9	11	23	1	10	1	12	8	1	0	9	1	0	4	5	49
% App. Total	13	39.1	47.8		8.3	83.3	8.3		88.9	11.1	0		20	0	80		
PHF	.750	.750	.688	.821	.250	.500	.250	.500	.400	.250	.000	.450	.250	.000	.333	.417	.681

Exhibit B-2

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2
08:45 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	0	0	0	1	1	4
Grand Total	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	0	0	0	2	2	5
Apprch %	0	0	0	0		0	0	0	100		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	40	40	0	0	0	20	20	0	0	0	40	40	

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit B-3

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	14	82	27	0	123	2	65	1	1	69	11	3	1	0	15	0	0	21	0	21	228
07:15 AM	34	120	39	4	197	0	58	2	1	61	6	0	0	0	6	2	0	27	0	29	293
07:30 AM	26	144	42	0	212	0	72	2	0	74	14	3	0	0	17	3	0	25	0	28	331
07:45 AM	43	200	61	0	304	0	61	2	0	63	15	4	3	0	22	1	0	24	0	25	414
Total	117	546	169	4	836	2	256	7	2	267	46	10	4	0	60	6	0	97	0	103	1266
08:00 AM	26	165	47	0	238	1	103	1	0	105	18	2	2	0	22	5	3	28	0	36	401
08:15 AM	35	201	56	0	292	4	92	6	0	102	17	1	2	0	20	6	1	27	0	34	448
08:30 AM	42	187	57	0	286	0	98	6	0	104	32	3	2	0	37	1	1	32	1	35	462
08:45 AM	40	165	45	0	250	1	112	9	0	122	31	5	3	0	39	3	3	42	0	48	459
Total	143	718	205	0	1066	6	405	22	0	433	98	11	9	0	118	15	8	129	1	153	1770
Grand Total	260	1264	374	4	1902	8	661	29	2	700	144	21	13	0	178	21	8	226	1	256	3036
Apprch %	13.7	66.5	19.7	0.2		1.1	94.4	4.1	0.3		80.9	11.8	7.3	0		8.2	3.1	88.3	0.4		
Total %	8.6	41.6	12.3	0.1	62.6	0.3	21.8	1	0.1	23.1	4.7	0.7	0.4	0	5.9	0.7	0.3	7.4	0	8.4	
Cars	253	1249	360	3	1865	6	641	28	2	677	128	20	13	0	161	20	8	219	1	248	2951
% Cars	97.3	98.8	96.3	75	98.1	75	97	96.6	100	96.7	88.9	95.2	100	0	90.4	95.2	100	96.9	100	96.9	97.2
Trucks	7	15	14	1	37	2	20	1	0	23	16	1	0	0	17	1	0	7	0	8	85
% Trucks	2.7	1.2	3.7	25	1.9	25	3	3.4	0	3.3	11.1	4.8	0	0	9.6	4.8	0	3.1	0	3.1	2.8

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	26	165	47	238	1	103	1	105	18	2	2	22	5	**3**	28	36	401
08:15 AM	35	**201**	56	**292**	**4**	92	6	102	17	1	2	20	**6**	1	27	34	448
08:30 AM	**42**	187	**57**	286	0	98	6	104	**32**	3	2	37	1	1	32	34	**461**
08:45 AM	40	165	45	250	1	**112**	**9**	**122**	31	**5**	**3**	**39**	3	3	**42**	**48**	459
Total Volume	143	718	205	1066	6	405	22	433	98	11	9	118	15	8	129	152	1769
% App. Total	13.4	67.4	19.2		1.4	93.5	5.1		83.1	9.3	7.6		9.9	5.3	84.9		
PHF	.851	.893	.899	.913	.375	.904	.611	.887	.766	.550	.750	.756	.625	.667	.768	.792	.959

Exhibit B-4

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	50	182	32	0	264	0	257	17	0	274	57	5	1	0	63	20	11	120	0	151	752
04:15 PM	68	170	25	0	263	2	238	16	0	256	49	6	4	0	59	14	15	104	0	133	711
04:30 PM	50	181	39	0	270	2	192	20	0	214	54	4	2	0	60	18	6	92	0	116	660
04:45 PM	61	171	36	0	268	2	212	16	0	230	43	5	4	0	52	18	5	96	0	119	669
Total	229	704	132	0	1065	6	899	69	0	974	203	20	11	0	234	70	37	412	0	519	2792
05:00 PM	46	166	23	1	236	0	269	23	0	292	52	2	4	0	58	14	2	107	0	123	709
05:15 PM	58	175	27	1	261	1	231	23	0	255	53	7	1	0	61	8	11	101	0	120	697
05:30 PM	50	190	33	0	273	0	216	21	0	237	42	6	2	0	50	10	3	91	0	104	664
05:45 PM	46	165	26	0	237	1	201	13	0	215	23	4	2	0	29	15	7	66	0	88	569
Total	200	696	109	2	1007	2	917	80	0	999	170	19	9	0	198	47	23	365	0	435	2639
Grand Total	429	1400	241	2	2072	8	1816	149	0	1973	373	39	20	0	432	117	60	777	0	954	5431
Apprch %	20.7	67.6	11.6	0.1		0.4	92	7.6	0		86.3	9	4.6	0		12.3	6.3	81.4	0		
Total %	7.9	25.8	4.4	0	38.2	0.1	33.4	2.7	0	36.3	6.9	0.7	0.4	0	8	2.2	1.1	14.3	0	17.6	

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	50	**182**	32	264	0	**257**	17	**274**	**57**	5	1	**63**	**20**	11	**120**	**151**	**752**
04:15 PM	**68**	170	25	263	**2**	238	16	256	49	**6**	**4**	59	14	**15**	104	133	711
04:30 PM	50	181	**39**	**270**	2	192	**20**	214	54	4	2	60	18	6	92	116	660
04:45 PM	61	171	36	268	2	212	16	230	43	5	4	52	18	5	96	119	669
Total Volume	229	704	132	1065	6	899	69	974	203	20	11	234	70	37	412	519	2792
% App. Total	21.5	66.1	12.4		0.6	92.3	7.1		86.8	8.5	4.7		13.5	7.1	79.4		
PHF	.842	.967	.846	.986	.750	.875	.863	.889	.890	.833	.688	.929	.875	.617	.858	.859	.928

Exhibit B-5

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
04:15 PM	0	2	3	0	5	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	7
04:30 PM	0	2	0	0	2	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	6
04:45 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3
Total	1	5	4	0	10	0	7	0	0	7	1	0	0	0	1	0	0	1	0	1	19
05:00 PM	0	2	1	0	3	0	4	0	0	4	1	0	0	0	1	0	0	0	0	0	8
05:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
05:45 PM	1	2	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Total	1	5	3	0	9	0	6	0	0	6	1	0	0	0	1	0	0	0	0	0	16
Grand Total	2	10	7	0	19	0	13	0	0	13	2	0	0	0	2	0	0	1	0	1	35
Apprch %	10.5	52.6	36.8	0		0	100	0	0		100	0	0	0		0	0	100	0		
Total %	5.7	28.6	20	0	54.3	0	37.1	0	0	37.1	5.7	0	0	0	5.7	0	0	2.9	0	2.9	

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	**2**	**3**	**5**	0	1	0	1	0	0	0	0	0	0	**1**	**1**	7
04:30 PM	0	2	0	2	0	3	0	3	**1**	0	0	**1**	0	0	0	0	6
04:45 PM	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	0	3
05:00 PM	0	2	1	3	0	**4**	0	**4**	1	0	0	1	0	0	0	0	**8**
Total Volume	0	6	5	11	0	10	0	10	2	0	0	2	0	0	1	1	24
% App. Total	0	54.5	45.5		0	100	0		100	0	0		0	0	100		
PHF	.000	.750	.417	.550	.000	.625	.000	.625	.500	.000	.000	.500	.000	.000	.250	.250	.750

Exhibit B-6

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	4	4	5
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	4	4	5
Apprch %	0	0	0	0		0	0	0	0		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	0	0	0	80	80	

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit B-7

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	51	183	32	0	266	0	258	17	0	275	57	5	1	0	63	20	11	120	0	151	755
04:15 PM	68	172	28	0	268	2	239	16	0	257	49	6	4	0	59	14	15	105	0	134	718
04:30 PM	50	183	39	0	272	2	195	20	0	217	55	4	2	0	61	18	6	92	0	116	666
04:45 PM	61	171	37	0	269	2	214	16	0	232	43	5	4	0	52	18	5	96	0	119	672
Total	230	709	136	0	1075	6	906	69	0	981	204	20	11	0	235	70	37	413	0	520	2811
05:00 PM	46	168	24	1	239	0	273	23	0	296	53	2	4	0	59	14	2	107	0	123	717
05:15 PM	58	175	27	1	261	1	232	23	0	256	53	7	1	0	61	8	11	101	0	120	698
05:30 PM	50	191	33	0	274	0	217	21	0	238	42	6	2	0	50	10	3	91	0	104	666
05:45 PM	47	167	28	0	242	1	201	13	0	215	23	4	2	0	29	15	7	66	0	88	574
Total	201	701	112	2	1016	2	923	80	0	1005	171	19	9	0	199	47	23	365	0	435	2655
Grand Total	431	1410	248	2	2091	8	1829	149	0	1986	375	39	20	0	434	117	60	778	0	955	5466
Apprch %	20.6	67.4	11.9	0.1		0.4	92.1	7.5	0		86.4	9	4.6	0		12.3	6.3	81.5	0		
Total %	7.9	25.8	4.5	0	38.3	0.1	33.5	2.7	0	36.3	6.9	0.7	0.4	0	7.9	2.1	1.1	14.2	0	17.5	
Cars	429	1400	241	2	2072	8	1816	149	0	1973	373	39	20	0	432	117	60	777	0	954	5431
% Cars	99.5	99.3	97.2	100	99.1	100	99.3	100	0	99.3	99.5	100	100	0	99.5	100	100	99.9	0	99.9	99.4
Trucks	2	10	7	0	19	0	13	0	0	13	2	0	0	0	2	0	0	1	0	1	35
% Trucks	0.5	0.7	2.8	0	0.9	0	0.7	0	0	0.7	0.5	0	0	0	0.5	0	0	0.1	0	0.1	0.6

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	51	**183**	32	266	0	**258**	17	**275**	**57**	5	1	**63**	**20**	11	**120**	**151**	**755**
04:15 PM	**68**	172	28	268	**2**	239	16	257	49	**6**	**4**	59	14	**15**	105	134	718
04:30 PM	50	183	**39**	**272**	2	195	**20**	217	55	4	2	61	18	6	92	116	666
04:45 PM	61	171	37	269	2	214	16	232	43	5	4	52	18	5	96	119	672
Total Volume	230	709	136	1075	6	906	69	981	204	20	11	235	70	37	413	520	2811
% App. Total	21.4	66	12.7		0.6	92.4	7		86.8	8.5	4.7		13.5	7.1	79.4		
PHF	.846	.969	.872	.988	.750	.878	.863	.892	.895	.833	.688	.933	.875	.617	.860	.861	.931

Exhibit B-8

File Name: R:\Jobs 2021 Final\21-149.va_RT 199_Monricello_Ironbound Counts, Group One District(Final-NoTrafX)\P
Start Date: 4/13/2021
Start Time: 7:00:00 AM
Site Code:
Comment 1:
Comment 2:
Comment 3:
Comment 4:

	Casey Blvd Southbound				Monticello Ave Westbound				Ironbound Rd Northbound				Monticello Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00:00 AM	21	0	0	0	1	65	2	1	1	3	11	0	27	82	14	0
7:15:00 AM	27	0	2	0	2	58	0	1	0	0	6	0	39	120	34	4
7:30:00 AM	25	0	3	0	2	72	0	0	0	3	14	0	42	144	26	0
7:45:00 AM	24	0	1	0	2	61	0	0	3	4	15	0	61	200	43	0
8:00:00 AM	28	3	5	0	1	103	1	0	2	2	18	0	47	165	26	0
8:15:00 AM	27	1	6	0	6	92	4	0	2	1	17	0	56	201	35	0
8:30:00 AM	32	1	1	1	6	98	0	0	2	3	32	0	57	187	42	0
8:45:00 AM	42	3	3	0	9	112	1	0	3	5	31	0	45	165	40	0
TOTAL	226	8	21	1	29	661	8	2	13	21	144	0	374	1264	260	4
8-9 TOTAL	129	8	15	1	22	405	6	0	9	11	98	0	205	718	143	0
%T	3%	0%	7%	0%	5%	2%	17%	#####	0%	9%	8%	#####	5%	1%	2%	#####

EXHIBIT B-9

File Name: R:\Jobs 2021 Final\21-149.va_RT 199_Monricello_Ironbound Counts, Group One District(Final-NoTrafX)\P
Start Date: 4/13/2021
Start Time: 4:00:00 PM
Site Code:
Comment 1:
Comment 2:
Comment 3:
Comment 4:

	Casey Blvd Southbound				Monticello Ave Westbound				Ironbound Rd Northbound				Monticello Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
4:00:00 PM	120	11	20	0	17	258	0	0	1	5	57	0	32	183	51	0
4:15:00 PM	105	15	14	0	16	239	2	0	4	6	49	0	28	172	68	0
4:30:00 PM	92	6	18	0	20	195	2	0	2	4	55	0	39	183	50	0
4:45:00 PM	96	5	18	0	16	214	2	0	4	5	43	0	37	171	61	0
5:00:00 PM	107	2	14	0	23	273	0	0	4	2	53	0	24	168	46	1
5:15:00 PM	101	11	8	0	23	232	1	0	1	7	53	0	27	175	58	1
5:30:00 PM	91	3	10	0	21	217	0	0	2	6	42	0	33	191	50	0
5:45:00 PM	66	7	15	0	13	201	1	0	2	4	23	0	28	167	47	0
TOTAL	778	60	117	0	149	1829	8	0	20	39	375	0	248	1410	431	2
4-5 TOTAL	413	37	70	0	69	906	6	0	11	20	204	0	136	709	230	0
%T	0%	0%	0%	#####	0%	1%	0%	#####	0%	0%	0%	#####	3%	1%	0%	#####

EXHIBIT B-10

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
07:00 AM	0	91	0	91	78	19	0	97	0	0	0	33	33	221
07:15 AM	0	154	0	154	67	20	0	87	0	0	0	36	36	277
07:30 AM	0	165	0	165	78	22	0	100	0	0	0	33	33	298
07:45 AM	0	235	0	235	79	16	0	95	0	0	0	65	65	395
Total	0	645	0	645	302	77	0	379	0	0	0	167	167	1191
08:00 AM	0	192	0	192	118	23	0	141	0	0	0	53	53	386
08:15 AM	0	226	0	226	107	26	0	133	0	0	0	58	58	417
08:30 AM	0	218	0	218	120	33	0	153	0	0	0	55	55	426
08:45 AM	0	189	0	189	126	41	0	167	0	0	0	59	59	415
Total	0	825	0	825	471	123	0	594	0	0	0	225	225	1644
Grand Total	0	1470	0	1470	773	200	0	973	0	0	0	392	392	2835
Apprch %	0	100	0		79.4	20.6	0		0	0	0	100		
Total %	0	51.9	0	51.9	27.3	7.1	0	34.3	0	0	0	13.8	13.8	

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 08:00 AM												
08:00 AM	0	192	192	118	23	141	0	0	0	53	53	386
08:15 AM	0	**226**	**226**	107	26	133	0	0	0	58	58	417
08:30 AM	0	218	218	120	33	153	0	0	0	55	55	**426**
08:45 AM	0	189	189	**126**	**41**	**167**	0	0	0	**59**	**59**	415
Total Volume	0	825	825	471	123	594	0	0	0	225	225	1644
% App. Total	0	100		79.3	20.7		0	0	0	100		
PHF	.000	.913	.913	.935	.750	.889	.000	.000	.000	.953	.953	.965

Exhibit C-1

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
07:00 AM	0	1	0	1	2	0	0	2	0	0	0	1	1	4
07:15 AM	0	2	0	2	3	1	0	4	0	0	0	2	2	8
07:30 AM	0	4	0	4	5	3	0	8	0	0	0	2	2	14
07:45 AM	0	2	0	2	3	4	0	7	0	0	0	0	0	9
Total	0	9	0	9	13	8	0	21	0	0	0	5	5	35
08:00 AM	0	2	0	2	2	1	0	3	0	0	0	1	1	6
08:15 AM	0	6	0	6	1	0	0	1	0	0	0	3	3	10
08:30 AM	0	5	0	5	4	1	0	5	0	0	0	2	2	12
08:45 AM	0	1	0	1	7	7	0	14	0	0	0	3	3	18
Total	0	14	0	14	14	9	0	23	0	0	0	9	9	46
Grand Total	0	23	0	23	27	17	0	44	0	0	0	14	14	81
Apprch %	0	100	0		61.4	38.6	0		0	0	0	100		
Total %	0	28.4	0	28.4	33.3	21	0	54.3	0	0	0	17.3	17.3	

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 08:00 AM												
08:00 AM	0	2	2	2	1	3	0	0	0	1	1	6
08:15 AM	0	**6**	**6**	1	0	1	0	0	0	**3**	**3**	10
08:30 AM	0	5	5	4	1	5	0	0	0	2	2	12
08:45 AM	0	1	1	**7**	**7**	**14**	0	0	0	3	3	**18**
Total Volume	0	14	14	14	9	23	0	0	0	9	9	46
% App. Total	0	100		60.9	39.1		0	0	0	100		
PHF	.000	.583	.583	.500	.321	.411	.000	.000	.000	.750	.750	.639

Exhibit C-2

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	1	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	0	1	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Apprch %	0	0	0		0	0	0		100	0	0	0		
Total %	0	0	0	0	0	0	0	0	100	0	0	0	100	

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 07:00 AM												
07:00 AM	0	0	0	0	0	0	**1**	0	0	0	**1**	**1**
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	0	1	1
% App. Total	0	0		0	0		100	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.250

Exhibit C-3

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
07:00 AM	0	92	0	92	80	19	0	99	0	0	0	34	34	225
07:15 AM	0	156	0	156	70	21	0	91	0	0	0	38	38	285
07:30 AM	0	169	0	169	83	25	0	108	0	0	0	35	35	312
07:45 AM	0	237	0	237	82	20	0	102	0	0	0	65	65	404
Total	0	654	0	654	315	85	0	400	0	0	0	172	172	1226
08:00 AM	0	194	0	194	120	24	0	144	0	0	0	54	54	392
08:15 AM	0	232	0	232	108	26	0	134	0	0	0	61	61	427
08:30 AM	0	223	0	223	124	34	0	158	0	0	0	57	57	438
08:45 AM	0	190	0	190	133	48	0	181	0	0	0	62	62	433
Total	0	839	0	839	485	132	0	617	0	0	0	234	234	1690
Grand Total	0	1493	0	1493	800	217	0	1017	0	0	0	406	406	2916
Apprch %	0	100	0		78.7	21.3	0		0	0	0	100		
Total %	0	51.2	0	51.2	27.4	7.4	0	34.9	0	0	0	13.9	13.9	
Cars	0	1470	0	1470	773	200	0	973	0	0	0	392	392	2835
% Cars	0	98.5	0	98.5	96.6	92.2	0	95.7	0	0	0	96.6	96.6	97.2
Trucks	0	23	0	23	27	17	0	44	0	0	0	14	14	81
% Trucks	0	1.5	0	1.5	3.4	7.8	0	4.3	0	0	0	3.4	3.4	2.8

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 08:00 AM												
08:00 AM	0	194	194	120	24	144	0	0	0	54	54	392
08:15 AM	0	**232**	**232**	108	26	134	0	0	0	61	61	427
08:30 AM	0	223	223	124	34	158	0	0	0	57	57	**438**
08:45 AM	0	190	190	**133**	**48**	**181**	0	0	0	**62**	**62**	433
Total Volume	0	839	839	485	132	617	0	0	0	234	234	1690
% App. Total	0	100		78.6	21.4		0	0	0	100		
PHF	.000	.904	.904	.912	.688	.852	.000	.000	.000	.944	.944	.965

Exhibit C-4

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
04:00 PM	0	217	0	217	330	97	0	427	0	0	0	57	57	701
04:15 PM	0	215	0	215	309	85	0	394	0	0	0	42	42	651
04:30 PM	0	206	0	206	257	79	0	336	0	0	0	55	55	597
04:45 PM	0	224	0	224	284	68	0	352	0	0	0	51	51	627
Total	0	862	0	862	1180	329	0	1509	0	0	0	205	205	2576
05:00 PM	0	198	0	198	329	92	0	421	0	0	0	33	33	652
05:15 PM	0	219	0	219	302	86	0	388	0	0	0	45	45	652
05:30 PM	0	217	0	217	278	69	0	347	0	0	0	50	50	614
05:45 PM	0	210	0	210	243	45	0	288	0	0	0	35	35	533
Total	0	844	0	844	1152	292	0	1444	0	0	0	163	163	2451
Grand Total	0	1706	0	1706	2332	621	0	2953	0	0	0	368	368	5027
Apprch %	0	100	0		79	21	0		0	0	0	100		
Total %	0	33.9	0	33.9	46.4	12.4	0	58.7	0	0	0	7.3	7.3	

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 04:00 PM												
04:00 PM	0	217	217	**330**	**97**	**427**	0	0	0	**57**	**57**	**701**
04:15 PM	0	215	215	309	85	394	0	0	0	42	42	651
04:30 PM	0	206	206	257	79	336	0	0	0	55	55	597
04:45 PM	0	**224**	**224**	284	68	352	0	0	0	51	51	627
Total Volume	0	862	862	1180	329	1509	0	0	0	205	205	2576
% App. Total	0	100		78.2	21.8		0	0	0	100		
PHF	.000	.962	.962	.894	.848	.883	.000	.000	.000	.899	.899	.919

Exhibit C-5

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
04:00 PM	0	2	0	2	1	1	0	2	0	0	0	0	0	4
04:15 PM	0	5	0	5	1	1	0	2	0	0	0	0	0	7
04:30 PM	0	2	0	2	3	0	0	3	0	0	0	0	0	5
04:45 PM	0	1	0	1	1	1	0	2	0	0	0	0	0	3
Total	0	10	0	10	6	3	0	9	0	0	0	0	0	19
05:00 PM	0	2	0	2	2	2	0	4	0	0	0	0	0	6
05:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	1
05:30 PM	0	1	0	1	1	0	0	1	0	0	0	0	0	2
05:45 PM	0	5	0	5	0	0	0	0	0	0	0	0	0	5
Total	0	8	0	8	4	2	0	6	0	0	0	0	0	14
Grand Total	0	18	0	18	10	5	0	15	0	0	0	0	0	33
Apprch %	0	100	0		66.7	33.3	0		0	0	0	0		
Total %	0	54.5	0	54.5	30.3	15.2	0	45.5	0	0	0	0	0	

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 04:15 PM												
04:15 PM	0	**5**	**5**	1	1	2	0	0	0	0	0	**7**
04:30 PM	0	2	2	**3**	0	3	0	0	0	0	0	5
04:45 PM	0	1	1	1	1	2	0	0	0	0	0	3
05:00 PM	0	2	2	2	**2**	**4**	0	0	0	0	0	6
Total Volume	0	10	10	7	4	11	0	0	0	0	0	21
% App. Total	0	100		63.6	36.4		0	0	0	0		
PHF	.000	.500	.500	.583	.500	.688	.000	.000	.000	.000	.000	.750

Exhibit C-6

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Apprch %	0	0	0		0	0	0		100	0	0	0		
Total %	0	0	0	0	0	0	0	0	100	0	0	0	100	

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 04:00 PM												
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	**1**	0	0	0	**1**	**1**
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	0	1	1
% App. Total	0	0		0	0		100	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.250

Exhibit C-7

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
04:00 PM	0	219	0	219	331	98	0	429	0	0	0	57	57	705
04:15 PM	0	220	0	220	310	86	0	396	0	0	0	42	42	658
04:30 PM	0	208	0	208	260	79	0	339	0	0	0	55	55	602
04:45 PM	0	225	0	225	285	69	0	354	0	0	0	51	51	630
Total	0	872	0	872	1186	332	0	1518	0	0	0	205	205	2595
05:00 PM	0	200	0	200	331	94	0	425	0	0	0	33	33	658
05:15 PM	0	219	0	219	303	86	0	389	0	0	0	45	45	653
05:30 PM	0	218	0	218	279	69	0	348	0	0	0	50	50	616
05:45 PM	0	215	0	215	243	45	0	288	0	0	0	35	35	538
Total	0	852	0	852	1156	294	0	1450	0	0	0	163	163	2465
Grand Total	0	1724	0	1724	2342	626	0	2968	0	0	0	368	368	5060
Apprch %	0	100	0		78.9	21.1	0		0	0	0	100		
Total %	0	34.1	0	34.1	46.3	12.4	0	58.7	0	0	0	7.3	7.3	
Cars	0	1706	0	1706	2332	621	0	2953	0	0	0	368	368	5027
% Cars	0	99	0	99	99.6	99.2	0	99.5	0	0	0	100	100	99.3
Trucks	0	18	0	18	10	5	0	15	0	0	0	0	0	33
% Trucks	0	1	0	1	0.4	0.8	0	0.5	0	0	0	0	0	0.7

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 04:00 PM												
04:00 PM	0	219	219	**331**	**98**	**429**	0	0	0	**57**	**57**	**705**
04:15 PM	0	220	220	310	86	396	0	0	0	42	42	658
04:30 PM	0	208	208	260	79	339	0	0	0	55	55	602
04:45 PM	0	**225**	**225**	285	69	354	0	0	0	51	51	630
Total Volume	0	872	872	1186	332	1518	0	0	0	205	205	2595
% App. Total	0	100		78.1	21.9		0	0	0	100		
PHF	.000	.969	.969	.896	.847	.885	.000	.000	.000	.899	.899	.920

Exhibit C-8

File Name: R:\Jobs 2021 Final\21-149.va_RT 199_Monricello_Ironbound Counts, Group One District(Final-NoTrafX)\Pro
Start Date: 4/13/2021
Start Time: 7:00:00 AM
Site Code:
Comment 1:
Comment 2:
Comment 3:
Comment 4:

	Monticello Ave Westbound			RT 199 NB Off Ramp Northbound				Monticello Eastbound								
Start Time	Right	Thru	U-Turn	Right	Thru	Left	U-Turn	Thru	Left	U-Turn						
7:00:00 AM	19	80	0	34	0	0	0	92	0	0						
7:15:00 AM	21	70	0	38	0	0	0	156	0	0						
7:30:00 AM	25	83	0	35	0	0	0	169	0	0						
7:45:00 AM	20	82	0	65	0	0	0	237	0	0						
8:00:00 AM	24	120	0	54	0	0	0	194	0	0						
8:15:00 AM	26	108	0	61	0	0	0	232	0	0						
8:30:00 AM	34	124	0	57	0	0	0	223	0	0						
8:45:00 AM	48	133	0	62	0	0	0	190	0	0						
TOTAL	217	800	0	406	0	0	0	1493	0	0						
745-845 Total T	104	434	0	237	0	0	0	886	0	0	0	0	0	0	0	0
%T	9%	3%	#####	3%	#####	#####	#####	2%	#####	#####						

EXHIBIT C9

File Name: R:\Jobs 2021 Final\21-149.va_RT 199_Monricello_Ironbound Counts, Group One District(Final-NoTrafX)\Processe
Start Date: 4/13/2021
Start Time: 4:00:00 PM
Site Code:
Comment 1:
Comment 2:
Comment 3:
Comment 4:

	Monticello Ave Westbound			RT 199 NB Off Ramp Northbound				Monticello Eastbound		
Start Time	Right	Thru	U-Turn	Right	Thru	Left	U-Turn	Thru	Left	U-Turn
4:00:00 PM	98	331	0	57	0	0	0	219	0	0
4:15:00 PM	86	310	0	42	0	0	0	220	0	0
4:30:00 PM	79	260	0	55	0	0	0	208	0	0
4:45:00 PM	69	285	0	51	0	0	0	225	0	0
5:00:00 PM	94	331	0	33	0	0	0	200	0	0
5:15:00 PM	86	303	0	45	0	0	0	219	0	0
5:30:00 PM	69	279	0	50	0	0	0	218	0	0
5:45:00 PM	45	243	0	35	0	0	0	215	0	0
TOTAL	626	2342	0	368	0	0	0	1724	0	0
4-5 TOTAL	332	1186	0	205	0	0	0	872	0	0
%T	1%	1%	#DIV/0!	0%	#DIV/0!	#DIV/0!	#DIV/0!	1%	#DIV/0!	#DIV/0!

EXHIBIT C-10

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	44	76	0	0	120	29	50	0	0	79	36	0	0	0	36	13	0	0	0	13	248
07:15 AM	59	112	1	0	172	19	45	0	2	66	56	0	0	0	56	39	0	0	0	39	333
07:30 AM	88	122	0	0	210	20	60	0	0	80	28	0	0	0	28	51	0	0	0	51	369
07:45 AM	104	172	0	0	276	17	57	0	0	74	69	0	0	0	69	62	0	0	1	63	482
Total	295	482	1	0	778	85	212	0	2	299	189	0	0	0	189	165	0	0	1	166	1432
08:00 AM	74	132	0	0	206	30	96	0	0	126	58	0	0	0	58	50	0	0	0	50	440
08:15 AM	75	172	0	0	247	26	84	0	0	110	51	0	0	0	51	52	0	0	1	53	461
08:30 AM	65	163	0	0	228	25	94	0	0	119	63	0	0	0	63	59	0	0	0	59	469
08:45 AM	70	141	0	0	211	31	94	0	0	125	54	0	0	0	54	60	0	0	0	60	450
Total	284	608	0	0	892	112	368	0	0	480	226	0	0	0	226	221	0	0	1	222	1820
Grand Total	579	1090	1	0	1670	197	580	0	2	779	415	0	0	0	415	386	0	0	2	388	3252
Apprch %	34.7	65.3	0.1	0		25.3	74.5	0	0.3		100	0	0	0		99.5	0	0	0.5		
Total %	17.8	33.5	0	0	51.4	6.1	17.8	0	0.1	24	12.8	0	0	0	12.8	11.9	0	0	0.1	11.9	

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	**104**	**172**	0	**276**	17	57	0	74	**69**	0	0	**69**	**62**	0	0	**62**	**481**
08:00 AM	74	132	0	206	**30**	**96**	0	**126**	58	0	0	58	50	0	0	50	440
08:15 AM	75	172	0	247	26	84	0	110	51	0	0	51	52	0	0	52	460
08:30 AM	65	163	0	228	25	94	0	119	63	0	0	63	59	0	0	59	469
Total Volume	318	639	0	957	98	331	0	429	241	0	0	241	223	0	0	223	1850
% App. Total	33.2	66.8	0		22.8	77.2	0		100	0	0		100	0	0		
PHF	.764	.929	.000	.867	.817	.862	.000	.851	.873	.000	.000	.873	.899	.000	.000	.899	.962

Exhibit D-1

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	1	0	0	0	1	1	0	0	0	1	2	0	0	0	2	1	0	0	0	1	5
07:15 AM	1	2	0	0	3	1	2	0	0	3	5	0	0	2	7	0	0	0	0	0	13
07:30 AM	1	3	0	0	4	1	4	0	0	5	1	0	0	0	1	1	0	0	0	1	11
07:45 AM	0	0	0	0	0	1	1	0	0	2	2	0	0	0	2	3	0	0	0	3	7
Total	3	5	0	0	8	4	7	0	0	11	10	0	0	2	12	5	0	0	0	5	36
08:00 AM	2	2	0	0	4	0	4	0	0	4	2	0	0	0	2	1	0	0	0	1	11
08:15 AM	0	4	0	0	4	0	1	0	0	1	1	0	0	0	1	2	0	0	0	2	8
08:30 AM	1	4	0	0	5	1	3	0	0	4	3	0	0	0	3	1	0	0	0	1	13
08:45 AM	3	1	0	0	4	3	4	0	0	7	4	0	0	0	4	0	0	0	0	0	15
Total	6	11	0	0	17	4	12	0	0	16	10	0	0	0	10	4	0	0	0	4	47
Grand Total	9	16	0	0	25	8	19	0	0	27	20	0	0	2	22	9	0	0	0	9	83
Apprch %	36	64	0	0		29.6	70.4	0	0		90.9	0	0	9.1		100	0	0	0		
Total %	10.8	19.3	0	0	30.1	9.6	22.9	0	0	32.5	24.1	0	0	2.4	26.5	10.8	0	0	0	10.8	

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	2	2	0	4	0	**4**	0	4	2	0	0	2	1	0	0	1	11
08:15 AM	0	**4**	0	4	0	1	0	1	1	0	0	1	**2**	0	0	**2**	8
08:30 AM	1	4	0	**5**	1	3	0	4	3	0	0	3	1	0	0	1	13
08:45 AM	**3**	1	0	4	**3**	4	0	**7**	**4**	0	0	**4**	0	0	0	0	**15**
Total Volume	6	11	0	17	4	12	0	16	10	0	0	10	4	0	0	4	47
% App. Total	35.3	64.7	0		25	75	0		100	0	0		100	0	0		
PHF	.500	.688	.000	.850	.333	.750	.000	.571	.625	.000	.000	.625	.500	.000	.000	.500	.783

Exhibit D-2

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	3	3	4
Apprch %	0	0	0	0		0	0	0	0		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	25	25	0	0	0	75	75	

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit D-3

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	45	76	0	0	121	30	50	0	0	80	38	0	0	0	38	14	0	0	0	14	253
07:15 AM	60	114	1	0	175	20	47	0	2	69	61	0	0	2	63	39	0	0	0	39	346
07:30 AM	89	125	0	0	214	21	64	0	0	85	29	0	0	0	29	52	0	0	0	52	380
07:45 AM	104	172	0	0	276	18	58	0	0	76	71	0	0	0	71	65	0	0	1	66	489
Total	298	487	1	0	786	89	219	0	2	310	199	0	0	2	201	170	0	0	1	171	1468
08:00 AM	76	134	0	0	210	30	100	0	0	130	60	0	0	0	60	51	0	0	0	51	451
08:15 AM	75	176	0	0	251	26	85	0	0	111	52	0	0	0	52	54	0	0	1	55	469
08:30 AM	66	167	0	0	233	26	97	0	0	123	66	0	0	0	66	60	0	0	0	60	482
08:45 AM	73	142	0	0	215	34	98	0	0	132	58	0	0	0	58	60	0	0	0	60	465
Total	290	619	0	0	909	116	380	0	0	496	236	0	0	0	236	225	0	0	1	226	1867
Grand Total	588	1106	1	0	1695	205	599	0	2	806	435	0	0	2	437	395	0	0	2	397	3335
Apprch %	34.7	65.3	0.1	0		25.4	74.3	0	0.2		99.5	0	0	0.5		99.5	0	0	0.5		
Total %	17.6	33.2	0	0	50.8	6.1	18	0	0.1	24.2	13	0	0	0.1	13.1	11.8	0	0	0.1	11.9	
Cars	579	1090	1	0	1670	197	580	0	2	779	415	0	0	0	415	386	0	0	2	388	3252
% Cars	98.5	98.6	100	0	98.5	96.1	96.8	0	100	96.7	95.4	0	0	0	95	97.7	0	0	100	97.7	97.5
Trucks	9	16	0	0	25	8	19	0	0	27	20	0	0	2	22	9	0	0	0	9	83
% Trucks	1.5	1.4	0	0	1.5	3.9	3.2	0	0	3.3	4.6	0	0	100	5	2.3	0	0	0	2.3	2.5

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	**104**	172	0	**276**	18	58	0	76	**71**	0	0	**71**	**65**	0	0	**65**	**488**
08:00 AM	76	134	0	210	**30**	**100**	0	**130**	60	0	0	60	51	0	0	51	451
08:15 AM	75	**176**	0	251	26	85	0	111	52	0	0	52	54	0	0	54	468
08:30 AM	66	167	0	233	26	97	0	123	66	0	0	66	60	0	0	60	482
Total Volume	321	649	0	970	100	340	0	440	249	0	0	249	230	0	0	230	1889
% App. Total	33.1	66.9	0		22.7	77.3	0		100	0	0		100	0	0		
PHF	.772	.922	.000	.879	.833	.850	.000	.846	.877	.000	.000	.877	.885	.000	.000	.885	.968

Exhibit D-4

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	93	169	0	0	262	61	274	0	0	335	114	0	0	0	114	41	0	0	0	41	752
04:15 PM	114	162	0	0	276	52	261	0	0	313	97	0	0	0	97	50	0	0	0	50	736
04:30 PM	92	167	0	0	259	47	189	0	0	236	136	0	0	1	137	53	0	0	0	53	685
04:45 PM	120	151	0	0	271	54	248	0	1	303	114	0	0	0	114	56	0	0	2	58	746
Total	419	649	0	0	1068	214	972	0	1	1187	461	0	0	1	462	200	0	0	2	202	2919
05:00 PM	125	156	0	0	281	70	269	0	2	341	98	0	0	0	98	40	0	0	1	41	761
05:15 PM	114	157	0	0	271	62	225	0	0	287	118	0	0	0	118	66	0	0	0	66	742
05:30 PM	98	179	0	0	277	47	244	0	0	291	132	0	0	0	132	39	0	0	0	39	739
05:45 PM	97	167	0	0	264	36	215	0	0	251	95	0	0	0	95	36	0	0	0	36	646
Total	434	659	0	0	1093	215	953	0	2	1170	443	0	0	0	443	181	0	0	1	182	2888
Grand Total	853	1308	0	0	2161	429	1925	0	3	2357	904	0	0	1	905	381	0	0	3	384	5807
Apprch %	39.5	60.5	0	0		18.2	81.7	0	0.1		99.9	0	0	0.1		99.2	0	0	0.8		
Total %	14.7	22.5	0	0	37.2	7.4	33.1	0	0.1	40.6	15.6	0	0	0	15.6	6.6	0	0	0.1	6.6	

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	120	151	0	271	54	248	0	302	114	0	0	114	56	0	0	56	743
05:00 PM	**125**	156	0	**281**	**70**	**269**	0	**339**	98	0	0	98	40	0	0	40	**758**
05:15 PM	114	157	0	271	62	225	0	287	118	0	0	118	**66**	0	0	**66**	742
05:30 PM	98	**179**	0	277	47	244	0	291	**132**	0	0	**132**	39	0	0	39	739
Total Volume	457	643	0	1100	233	986	0	1219	462	0	0	462	201	0	0	201	2982
% App. Total	41.5	58.5	0		19.1	80.9	0		100	0	0		100	0	0		
PHF	.914	.898	.000	.979	.832	.916	.000	.899	.875	.000	.000	.875	.761	.000	.000	.761	.984

Exhibit D-5

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	4
04:15 PM	0	5	0	0	5	0	1	0	0	1	1	0	0	0	1	1	0	0	0	1	8
04:30 PM	3	1	0	0	4	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	8
04:45 PM	0	1	0	0	1	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	4
Total	4	8	0	0	12	0	7	0	0	7	3	0	0	0	3	2	0	0	0	2	24
05:00 PM	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	1	0	0	0	1	5
05:15 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
05:30 PM	1	1	0	0	2	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	4
05:45 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	5
Total	2	4	0	0	6	0	5	0	0	5	2	0	0	0	2	3	0	0	0	3	16
Grand Total	6	12	0	0	18	0	12	0	0	12	5	0	0	0	5	5	0	0	0	5	40
Apprch %	33.3	66.7	0	0		0	100	0	0		100	0	0	0		100	0	0	0		
Total %	15	30	0	0	45	0	30	0	0	30	12.5	0	0	0	12.5	12.5	0	0	0	12.5	

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	**5**	0	**5**	0	1	0	1	**1**	0	0	**1**	**1**	0	0	**1**	**8**
04:30 PM	**3**	1	0	4	0	**3**	0	**3**	1	0	0	1	0	0	0	0	8
04:45 PM	0	1	0	1	0	2	0	2	1	0	0	1	0	0	0	0	4
05:00 PM	0	1	0	1	0	3	0	3	0	0	0	0	1	0	0	1	5
Total Volume	3	8	0	11	0	9	0	9	3	0	0	3	2	0	0	2	25
% App. Total	27.3	72.7	0		0	100	0		100	0	0		100	0	0		
PHF	.250	.400	.000	.550	.000	.750	.000	.750	.750	.000	.000	.750	.500	.000	.000	.500	.781

Exhibit D-6

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	1	1	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	6
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	7	7	10
Apprch %	0	0	0	0		0	0	0	0		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30	0	0	0	70	70	

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit D-7

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	94	170	0	0	264	61	275	0	0	336	114	0	0	0	114	42	0	0	0	42	756
04:15 PM	114	167	0	0	281	52	262	0	0	314	98	0	0	0	98	51	0	0	0	51	744
04:30 PM	95	168	0	0	263	47	192	0	0	239	137	0	0	1	138	53	0	0	0	53	693
04:45 PM	120	152	0	0	272	54	250	0	1	305	115	0	0	0	115	56	0	0	2	58	750
Total	423	657	0	0	1080	214	979	0	1	1194	464	0	0	1	465	202	0	0	2	204	2943
05:00 PM	125	157	0	0	282	70	272	0	2	344	98	0	0	0	98	41	0	0	1	42	766
05:15 PM	114	157	0	0	271	62	226	0	0	288	119	0	0	0	119	66	0	0	0	66	744
05:30 PM	99	180	0	0	279	47	245	0	0	292	133	0	0	0	133	39	0	0	0	39	743
05:45 PM	98	169	0	0	267	36	215	0	0	251	95	0	0	0	95	38	0	0	0	38	651
Total	436	663	0	0	1099	215	958	0	2	1175	445	0	0	0	445	184	0	0	1	185	2904
Grand Total	859	1320	0	0	2179	429	1937	0	3	2369	909	0	0	1	910	386	0	0	3	389	5847
Apprch %	39.4	60.6	0	0		18.1	81.8	0	0.1		99.9	0	0	0.1		99.2	0	0	0.8		
Total %	14.7	22.6	0	0	37.3	7.3	33.1	0	0.1	40.5	15.5	0	0	0	15.6	6.6	0	0	0.1	6.7	
Cars	853	1308	0	0	2161	429	1925	0	3	2357	904	0	0	1	905	381	0	0	3	384	5807
% Cars	99.3	99.1	0	0	99.2	100	99.4	0	100	99.5	99.4	0	0	100	99.5	98.7	0	0	100	98.7	99.3
Trucks	6	12	0	0	18	0	12	0	0	12	5	0	0	0	5	5	0	0	0	5	40
% Trucks	0.7	0.9	0	0	0.8	0	0.6	0	0	0.5	0.6	0	0	0	0.5	1.3	0	0	0	1.3	0.7

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	120	152	0	272	54	250	0	304	115	0	0	115	56	0	0	56	747
05:00 PM	**125**	157	0	**282**	**70**	**272**	0	**342**	98	0	0	98	41	0	0	41	**763**
05:15 PM	114	157	0	271	62	226	0	288	119	0	0	119	**66**	0	0	**66**	744
05:30 PM	99	**180**	0	279	47	245	0	292	**133**	0	0	**133**	39	0	0	39	743
Total Volume	458	646	0	1104	233	993	0	1226	465	0	0	465	202	0	0	202	2997
% App. Total	41.5	58.5	0		19	81	0		100	0	0		100	0	0		
PHF	.916	.897	.000	.979	.832	.913	.000	.896	.874	.000	.000	.874	.765	.000	.000	.765	.982

Exhibit D-8

File Name: R:\Jobs 2021 Final\21-149.va_RT 199_Monricello_Ironbound Counts, Group One District(Final-NoTrafX)\P
Start Date: 4/13/2021
Start Time: 7:00:00 AM
Site Code:
Comment 1:
Comment 2:
Comment 3:
Comment 4:

	RT 199 Ramps Southbound				Monticello Ave Westbound				RT 199 Ramps Northbound				Monticello Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00:00 AM	0	0	14	0	0	50	30	0	0	0	38	0	0	76	45	0
7:15:00 AM	0	0	39	0	0	47	20	2	0	0	61	2	1	114	60	0
7:30:00 AM	0	0	52	0	0	64	21	0	0	0	29	0	0	125	89	0
7:45:00 AM	0	0	65	1	0	58	18	0	0	0	71	0	0	172	104	0
8:00:00 AM	0	0	51	0	0	100	30	0	0	0	60	0	0	134	76	0
8:15:00 AM	0	0	54	1	0	85	26	0	0	0	52	0	0	176	75	0
8:30:00 AM	0	0	60	0	0	97	26	0	0	0	66	0	0	167	66	0
8:45:00 AM	0	0	60	0	0	98	34	0	0	0	58	0	0	142	73	0
TOTAL	0	0	395	2	0	599	205	2	0	0	435	2	1	1106	588	0
745-845 Total	0	0	230	2	0	340	100	0	0	0	249	0	0	649	321	0
%T	#####	#####	2%	0%	#####	4%	4%	#####	#####	#####	4%	#####	#####	2%	2%	#####

EXHIBIT D-9

File Name: R:\Jobs 2021 Final\21-149.va_RT 199_Monricello_Ironbound Counts, Group One District(Final-NoTrafX)\P
Start Date: 4/13/2021
Start Time: 4:00:00 PM
Site Code:
Comment 1:
Comment 2:
Comment 3:
Comment 4:

	RT 199 Ramps Southbound				Monticello Ave Westbound				RT 199 Ramps Northbound				Monticello Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
4:00:00 PM	0	0	42	0	0	275	61	0	0	0	114	0	0	170	94	0
4:15:00 PM	0	0	51	0	0	262	52	0	0	0	98	0	0	167	114	0
4:30:00 PM	0	0	53	0	0	192	47	0	0	0	137	1	0	168	95	0
4:45:00 PM	0	0	56	2	0	250	54	1	0	0	115	0	0	152	120	0
5:00:00 PM	0	0	41	1	0	272	70	2	0	0	98	0	0	157	125	0
5:15:00 PM	0	0	66	0	0	226	62	0	0	0	119	0	0	157	114	0
5:30:00 PM	0	0	39	0	0	245	47	0	0	0	133	0	0	180	99	0
5:45:00 PM	0	0	38	0	0	215	36	0	0	0	95	0	0	169	98	0
TOTAL	0	0	386	3	0	1937	429	3	0	0	909	1	0	1320	859	0
445-545 Total	0	0	202	3	0	993	233	3	0	0	465	0	0	646	458	0
%T	#####	#####	0%	0%	#####	1%	0%	0%	#####	#####	1%	#####	#####	0%	0%	#####

EXHIBIT D-10

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave AM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Cars

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
07:00 AM	0	78	13	0	91	11	50	1	0	62	17	2	11	0	30	1	0	0	0	1	184
07:15 AM	2	93	20	0	115	8	52	4	0	64	18	0	11	0	29	0	3	1	0	4	212
07:30 AM	4	108	17	0	129	11	46	1	0	58	12	1	12	0	25	1	3	1	0	5	217
07:45 AM	5	147	21	0	173	8	75	5	0	88	13	0	13	0	26	2	2	6	0	10	297
Total	11	426	71	0	508	38	223	11	0	272	60	3	47	0	110	4	8	8	0	20	910
08:00 AM	8	143	21	0	172	14	82	5	0	101	14	3	11	0	28	3	2	8	0	13	314
08:15 AM	8	151	27	0	186	7	93	4	0	104	18	4	11	0	33	2	3	5	0	10	333
08:30 AM	10	149	13	0	172	5	84	3	0	92	13	1	10	0	24	4	2	8	0	14	302
08:45 AM	19	179	27	0	225	17	94	3	0	114	19	2	14	0	35	3	1	6	0	10	384
Total	45	622	88	0	755	43	353	15	0	411	64	10	46	0	120	12	8	27	0	47	1333
Grand Total	56	1048	159	0	1263	81	576	26	0	683	124	13	93	0	230	16	16	35	0	67	2243
Apprch %	4.4	83	12.6	0		11.9	84.3	3.8	0		53.9	5.7	40.4	0		23.9	23.9	52.2	0		
Total %	2.5	46.7	7.1	0	56.3	3.6	25.7	1.2	0	30.5	5.5	0.6	4.1	0	10.3	0.7	0.7	1.6	0	3	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	8	143	21	172	14	82	**5**	101	14	3	11	28	3	2	**8**	13	314
08:15 AM	8	151	**27**	186	7	93	4	104	18	**4**	11	33	2	**3**	5	10	333
08:30 AM	10	149	13	172	5	84	3	92	13	1	10	24	**4**	2	8	**14**	302
08:45 AM	**19**	**179**	27	**225**	**17**	**94**	3	**114**	**19**	2	**14**	**35**	3	1	6	10	**384**
Total Volume	45	622	88	755	43	353	15	411	64	10	46	120	12	8	27	47	1333
% App. Total	6	82.4	11.7		10.5	85.9	3.6		53.3	8.3	38.3		25.5	17	57.4		
PHF	.592	.869	.815	.839	.632	.939	.750	.901	.842	.625	.821	.857	.750	.667	.844	.839	.868

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	8	143	21	172	14	82	**5**	101	14	3	11	28	3	2	**8**	13	314
08:15 AM	8	151	**27**	186	7	93	4	104	18	**4**	11	33	2	**3**	5	10	333
08:30 AM	10	149	13	172	5	84	3	92	13	1	10	24	**4**	2	8	**14**	302
08:45 AM	**19**	**179**	27	**225**	**17**	**94**	3	**114**	**19**	2	**14**	**35**	3	1	6	10	**384**
Total Volume	45	622	88	755	43	353	15	411	64	10	46	120	12	8	27	47	1333
% App. Total	6	82.4	11.7		10.5	85.9	3.6		53.3	8.3	38.3		25.5	17	57.4		
PHF	.592	.869	.815	.839	.632	.939	.750	.901	.842	.625	.821	.857	.750	.667	.844	.839	.868

Exhibit E-1

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave AM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
07:00 AM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3
07:15 AM	0	3	0	0	3	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	5
07:30 AM	0	3	0	0	3	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	8
07:45 AM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	4
Total	0	9	0	0	9	0	10	0	0	10	1	0	0	0	1	0	0	0	0	0	20
08:00 AM	2	1	0	0	3	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	8
08:15 AM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	4
08:30 AM	0	5	0	0	5	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	7
08:45 AM	0	3	1	0	4	0	5	1	0	6	0	0	1	0	1	0	0	0	0	0	11
Total	2	11	1	0	14	0	14	1	0	15	0	0	1	0	1	0	0	0	0	0	30
Grand Total	2	20	1	0	23	0	24	1	0	25	1	0	1	0	2	0	0	0	0	0	50
Apprch %	8.7	87	4.3	0		0	96	4	0		50	0	50	0		0	0	0	0		
Total %	4	40	2	0	46	0	48	2	0	50	2	0	2	0	4	0	0	0	0	0	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**2**	1	0	3	0	**5**	0	5	0	0	0	0	0	0	0	0	8
08:15 AM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
08:30 AM	0	**5**	0	**5**	0	2	0	2	0	0	0	0	0	0	0	0	7
08:45 AM	0	3	**1**	4	0	5	**1**	**6**	0	0	**1**	**1**	0	0	0	0	**11**
Total Volume	2	11	1	14	0	14	1	15	0	0	1	1	0	0	0	0	30
% App. Total	14.3	78.6	7.1		0	93.3	6.7		0	0	100		0	0	0		
PHF	.250	.550	.250	.700	.000	.700	.250	.625	.000	.000	.250	.250	.000	.000	.000	.000	.682

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**2**	1	0	3	0	**5**	0	5	0	0	0	0	0	0	0	0	8
08:15 AM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
08:30 AM	0	**5**	0	**5**	0	2	0	2	0	0	0	0	0	0	0	0	7
08:45 AM	0	3	**1**	4	0	5	**1**	**6**	0	0	**1**	**1**	0	0	0	0	**11**
Total Volume	2	11	1	14	0	14	1	15	0	0	1	1	0	0	0	0	30
% App. Total	14.3	78.6	7.1		0	93.3	6.7		0	0	100		0	0	0		
PHF	.250	.550	.250	.700	.000	.700	.250	.625	.000	.000	.250	.250	.000	.000	.000	.000	.682

Exhibit E-2

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave AM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	1	1	3
07:15 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2
07:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2
07:45 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	0	0	0	1	1	4
Total	0	0	0	0	0	0	0	0	4	4	0	0	0	3	3	0	0	0	4	4	11
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	4	4	0	0	0	3	3	0	0	0	4	4	11
Apprch %	0	0	0	0		0	0	0	100		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	36.4	36.4	0	0	0	27.3	27.3	0	0	0	36.4	36.4	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit E-3

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave AM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Cars & Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
07:00 AM	0	79	13	0	92	11	52	1	0	64	17	2	11	0	30	1	0	0	0	1	187
07:15 AM	2	96	20	0	118	8	53	4	0	65	19	0	11	0	30	0	3	1	0	4	217
07:30 AM	4	111	17	0	132	11	51	1	0	63	12	1	12	0	25	1	3	1	0	5	225
07:45 AM	5	149	21	0	175	8	77	5	0	90	13	0	13	0	26	2	2	6	0	10	301
Total	11	435	71	0	517	38	233	11	0	282	61	3	47	0	111	4	8	8	0	20	930
08:00 AM	10	144	21	0	175	14	87	5	0	106	14	3	11	0	28	3	2	8	0	13	322
08:15 AM	8	153	27	0	188	7	95	4	0	106	18	4	11	0	33	2	3	5	0	10	337
08:30 AM	10	154	13	0	177	5	86	3	0	94	13	1	10	0	24	4	2	8	0	14	309
08:45 AM	19	182	28	0	229	17	99	4	0	120	19	2	15	0	36	3	1	6	0	10	395
Total	47	633	89	0	769	43	367	16	0	426	64	10	47	0	121	12	8	27	0	47	1363
Grand Total	58	1068	160	0	1286	81	600	27	0	708	125	13	94	0	232	16	16	35	0	67	2293
Apprch %	4.5	83	12.4	0		11.4	84.7	3.8	0		53.9	5.6	40.5	0		23.9	23.9	52.2	0		
Total %	2.5	46.6	7	0	56.1	3.5	26.2	1.2	0	30.9	5.5	0.6	4.1	0	10.1	0.7	0.7	1.5	0	2.9	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	10	144	21	175	14	87	**5**	106	14	3	11	28	3	2	**8**	13	322
08:15 AM	8	153	27	188	7	95	4	106	18	**4**	11	33	2	**3**	5	10	337
08:30 AM	10	154	13	177	5	86	3	94	13	1	10	24	**4**	2	8	**14**	309
08:45 AM	**19**	**182**	**28**	**229**	**17**	**99**	4	**120**	**19**	2	**15**	**36**	3	1	6	10	**395**
Total Volume	47	633	89	769	43	367	16	426	64	10	47	121	12	8	27	47	1363
% App. Total	6.1	82.3	11.6		10.1	86.2	3.8		52.9	8.3	38.8		25.5	17	57.4		
PHF	.618	.870	.795	.840	.632	.927	.800	.888	.842	.625	.783	.840	.750	.667	.844	.839	.863

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	10	144	21	175	14	87	**5**	106	14	3	11	28	3	2	**8**	13	322
08:15 AM	8	153	27	188	7	95	4	106	18	**4**	11	33	2	**3**	5	10	337
08:30 AM	10	154	13	177	5	86	3	94	13	1	10	24	**4**	2	8	**14**	309
08:45 AM	**19**	**182**	**28**	**229**	**17**	**99**	4	**120**	**19**	2	**15**	**36**	3	1	6	10	**395**
Total Volume	47	633	89	769	43	367	16	426	64	10	47	121	12	8	27	47	1363
% App. Total	6.1	82.3	11.6		10.1	86.2	3.8		52.9	8.3	38.8		25.5	17	57.4		
PHF	.618	.870	.795	.840	.632	.927	.800	.888	.842	.625	.783	.840	.750	.667	.844	.839	.863

Exhibit E-4

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave PM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Cars

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
04:00 PM	23	171	12	0	206	21	227	21	0	269	13	2	18	0	33	8	5	27	0	40	548
04:15 PM	17	205	15	0	237	14	233	29	0	276	25	7	19	0	51	9	7	22	0	38	602
04:30 PM	24	197	17	0	238	19	248	20	0	287	14	4	15	0	33	8	3	24	0	35	593
04:45 PM	19	174	10	0	203	12	204	21	0	237	12	3	13	0	28	7	6	18	0	31	499
Total	83	747	54	0	884	66	912	91	0	1069	64	16	65	0	145	32	21	91	0	144	2242
05:00 PM	18	161	11	0	190	8	259	23	0	290	13	4	15	0	32	9	6	24	0	39	551
05:15 PM	11	197	17	0	225	11	241	15	0	267	22	3	8	0	33	11	1	22	0	34	559
05:30 PM	18	155	15	0	188	17	184	26	0	227	23	3	9	0	35	8	3	19	0	30	480
05:45 PM	16	169	11	0	196	10	163	19	0	192	17	2	5	0	24	12	3	26	0	41	453
Total	63	682	54	0	799	46	847	83	0	976	75	12	37	0	124	40	13	91	0	144	2043
Grand Total	146	1429	108	0	1683	112	1759	174	0	2045	139	28	102	0	269	72	34	182	0	288	4285
Apprch %	8.7	84.9	6.4	0		5.5	86	8.5	0		51.7	10.4	37.9	0		25	11.8	63.2	0		
Total %	3.4	33.3	2.5	0	39.3	2.6	41.1	4.1	0	47.7	3.2	0.7	2.4	0	6.3	1.7	0.8	4.2	0	6.7	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	17	**205**	15	237	14	233	**29**	276	**25**	**7**	**19**	**51**	**9**	**7**	22	38	**602**
04:30 PM	**24**	197	**17**	**238**	**19**	248	20	287	14	4	15	33	8	3	**24**	35	593
04:45 PM	19	174	10	203	12	204	21	237	12	3	13	28	7	6	18	31	499
05:00 PM	18	161	11	190	8	**259**	23	**290**	13	4	15	32	9	6	24	**39**	551
Total Volume	78	737	53	868	53	944	93	1090	64	18	62	144	33	22	88	143	2245
% App. Total	9	84.9	6.1		4.9	86.6	8.5		44.4	12.5	43.1		23.1	15.4	61.5		
PHF	.813	.899	.779	.912	.697	.911	.802	.940	.640	.643	.816	.706	.917	.786	.917	.917	.932
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	17	**205**	15	237	14	233	**29**	276	**25**	**7**	**19**	**51**	**9**	**7**	22	38	**602**
04:30 PM	**24**	197	**17**	**238**	**19**	248	20	287	14	4	15	33	8	3	**24**	35	593
04:45 PM	19	174	10	203	12	204	21	237	12	3	13	28	7	6	18	31	499
05:00 PM	18	161	11	190	8	**259**	23	**290**	13	4	15	32	9	6	24	**39**	551
Total Volume	78	737	53	868	53	944	93	1090	64	18	62	144	33	22	88	143	2245
% App. Total	9	84.9	6.1		4.9	86.6	8.5		44.4	12.5	43.1		23.1	15.4	61.5		
PHF	.813	.899	.779	.912	.697	.911	.802	.940	.640	.643	.816	.706	.917	.786	.917	.917	.932

Exhibit E-5

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave PM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
04:00 PM	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	0	0	1	0	1	5
04:15 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
04:30 PM	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
04:45 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	5	0	0	5	0	6	0	0	6	0	0	0	0	0	0	0	1	0	1	12
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
05:30 PM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	2	0	0	3	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	6
Grand Total	1	7	0	0	8	0	9	0	0	9	0	0	0	0	0	0	0	1	0	1	18
Apprch %	12.5	87.5	0	0		0	100	0	0		0	0	0	0		0	0	100	0		
Total %	5.6	38.9	0	0	44.4	0	50	0	0	50	0	0	0	0	0	0	0	5.6	0	5.6	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	1	0	1	0	**3**	0	**3**	0	0	0	0	0	0	**1**	**1**	**5**
04:15 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
04:30 PM	0	**2**	0	**2**	0	1	0	1	0	0	0	0	0	0	0	0	3
04:45 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
Total Volume	0	5	0	5	0	6	0	6	0	0	0	0	0	0	1	1	12
% App. Total	0	100	0		0	100	0		0	0	0		0	0	100		
PHF	.000	.625	.000	.625	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.250	.250	.600
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	1	0	1	0	**3**	0	**3**	0	0	0	0	0	0	**1**	**1**	**5**
04:15 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
04:30 PM	0	**2**	0	**2**	0	1	0	1	0	0	0	0	0	0	0	0	3
04:45 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
Total Volume	0	5	0	5	0	6	0	6	0	0	0	0	0	0	1	1	12
% App. Total	0	100	0		0	100	0		0	0	0		0	0	100		
PHF	.000	.625	.000	.625	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.250	.250	.600

Exhibit E-6

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave PM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
04:15 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	0	0	0	1	1	4
04:30 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2
Total	0	0	0	0	0	0	0	0	6	6	0	0	0	2	2	0	0	0	2	2	10
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	5	5	0	0	0	1	1	0	0	0	0	0	6
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
05:45 PM	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	5
Total	0	0	0	0	0	0	0	0	10	10	0	0	0	2	2	0	0	0	1	1	13
Grand Total	0	0	0	0	0	0	0	0	16	16	0	0	0	4	4	0	0	0	3	3	23
Apprch %	0	0	0	0		0	0	0	100		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	69.6	69.6	0	0	0	17.4	17.4	0	0	0	13	13	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit E-7

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave PM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Cars & Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
04:00 PM	23	172	12	0	207	21	230	21	0	272	13	2	18	0	33	8	5	28	0	41	553
04:15 PM	17	206	15	0	238	14	234	29	0	277	25	7	19	0	51	9	7	22	0	38	604
04:30 PM	24	199	17	0	240	19	249	20	0	288	14	4	15	0	33	8	3	24	0	35	596
04:45 PM	19	175	10	0	204	12	205	21	0	238	12	3	13	0	28	7	6	18	0	31	501
Total	83	752	54	0	889	66	918	91	0	1075	64	16	65	0	145	32	21	92	0	145	2254
05:00 PM	18	162	11	0	191	8	259	23	0	290	13	4	15	0	32	9	6	24	0	39	552
05:15 PM	11	197	17	0	225	11	244	15	0	270	22	3	8	0	33	11	1	22	0	34	562
05:30 PM	19	156	15	0	190	17	184	26	0	227	23	3	9	0	35	8	3	19	0	30	482
05:45 PM	16	169	11	0	196	10	163	19	0	192	17	2	5	0	24	12	3	26	0	41	453
Total	64	684	54	0	802	46	850	83	0	979	75	12	37	0	124	40	13	91	0	144	2049
Grand Total	147	1436	108	0	1691	112	1768	174	0	2054	139	28	102	0	269	72	34	183	0	289	4303
Apprch %	8.7	84.9	6.4	0		5.5	86.1	8.5	0		51.7	10.4	37.9	0		24.9	11.8	63.3	0		
Total %	3.4	33.4	2.5	0	39.3	2.6	41.1	4	0	47.7	3.2	0.7	2.4	0	6.3	1.7	0.8	4.3	0	6.7	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	23	172	12	207	**21**	230	21	272	13	2	18	33	8	5	**28**	**41**	553
04:15 PM	17	**206**	15	238	14	234	**29**	277	**25**	**7**	**19**	**51**	**9**	**7**	22	38	**604**
04:30 PM	**24**	199	**17**	**240**	19	**249**	20	**288**	14	4	15	33	8	3	24	35	596
04:45 PM	19	175	10	204	12	205	21	238	12	3	13	28	7	6	18	31	501
Total Volume	83	752	54	889	66	918	91	1075	64	16	65	145	32	21	92	145	2254
% App. Total	9.3	84.6	6.1		6.1	85.4	8.5		44.1	11	44.8		22.1	14.5	63.4		
PHF	.865	.913	.794	.926	.786	.922	.784	.933	.640	.571	.855	.711	.889	.750	.821	.884	.933

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	23	172	12	207	**21**	230	21	272	13	2	18	33	8	5	**28**	**41**	553
04:15 PM	17	**206**	15	238	14	234	**29**	277	**25**	**7**	**19**	**51**	**9**	**7**	22	38	**604**
04:30 PM	**24**	199	**17**	**240**	19	**249**	20	**288**	14	4	15	33	8	3	24	35	596
04:45 PM	19	175	10	204	12	205	21	238	12	3	13	28	7	6	18	31	501
Total Volume	83	752	54	889	66	918	91	1075	64	16	65	145	32	21	92	145	2254
% App. Total	9.3	84.6	6.1		6.1	85.4	8.5		44.1	11	44.8		22.1	14.5	63.4		
PHF	.865	.913	.794	.926	.786	.922	.784	.933	.640	.571	.855	.711	.889	.750	.821	.884	.933

Exhibit E-8

File Name: R:\Jobs 2021\21-200.va_Monticello Ave Additional Counts, James City\Processed\
Start Date: 5/19/2021
Start Time: 7:00:00 AM
Site Code:
Comment 1:
Comment 2:
Comment 3:
Comment 4:

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound			
Start Time	Left	Thru	Right	U-Turns	Left	Thru	Right	U-Turns	Left	Thru	Right	U-Turns	Left	Thru	Right	U-Turns
7:00:00 AM	0	79	13	0	11	52	1	0	17	2	11	0	1	0	0	0
7:15:00 AM	2	96	20	0	8	53	4	0	19	0	11	0	0	3	1	0
7:30:00 AM	4	111	17	0	11	51	1	0	12	1	12	0	1	3	1	0
7:45:00 AM	5	149	21	0	8	77	5	0	13	0	13	0	2	2	6	0
8:00:00 AM	10	144	21	0	14	87	5	0	14	3	11	0	3	2	8	0
8:15:00 AM	8	153	27	0	7	95	4	0	18	4	11	0	2	3	5	0
8:30:00 AM	10	154	13	0	5	86	3	0	13	1	10	0	4	2	8	0
8:45:00 AM	19	182	28	0	17	99	4	0	19	2	15	0	3	1	6	0
TOTAL	58	1068	160	0	81	600	27	0	125	13	94	0	16	16	35	0
8-9 TOTAL	47	633	89	0	43	367	16	0	64	10	47	0	12	8	27	0
%T	4%	2%	1%	#####	0%	4%	6%	#####	0%	0%	2%	#####	0%	0%	0%	#####

EXHIBIT E-9

File Name: R:\Jobs 2021\21-200.va_Monticello Ave Additional Counts, James City\Processed\
Start Date: 5/19/2021
Start Time: 4:00:00 PM
Site Code:
Comment 1:
Comment 2:
Comment 3:
Comment 4:

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound			
Start Time	Left	Thru	Right	U-Turns	Left	Thru	Right	U-Turns	Left	Thru	Right	U-Turns	Left	Thru	Right	U-Turns
4:00:00 PM	23	172	12	0	21	230	21	0	13	2	18	0	8	5	28	0
4:15:00 PM	17	206	15	0	14	234	29	0	25	7	19	0	9	7	22	0
4:30:00 PM	24	199	17	0	19	249	20	0	14	4	15	0	8	3	24	0
4:45:00 PM	19	175	10	0	12	205	21	0	12	3	13	0	7	6	18	0
5:00:00 PM	18	162	11	0	8	259	23	0	13	4	15	0	9	6	24	0
5:15:00 PM	11	197	17	0	11	244	15	0	22	3	8	0	11	1	22	0
5:30:00 PM	19	156	15	0	17	184	26	0	23	3	9	0	8	3	19	0
5:45:00 PM	16	169	11	0	10	163	19	0	17	2	5	0	12	3	26	0
TOTAL	147	1436	108	0	112	1768	174	0	139	28	102	0	72	34	183	0
4-5 TOTAL	83	752	54	0	66	918	91	0	64	16	65	0	32	21	92	0
%T	0%	1%	0%	#####	0%	1%	0%	#####	0%	0%	0%	#####	0%	0%	1%	#####

EXHIBIT E-10

AM PEAK HOUR Date: Wed, 5/19/21

VIDEO COUNTED BY DRW CONSULTANTS, LLC

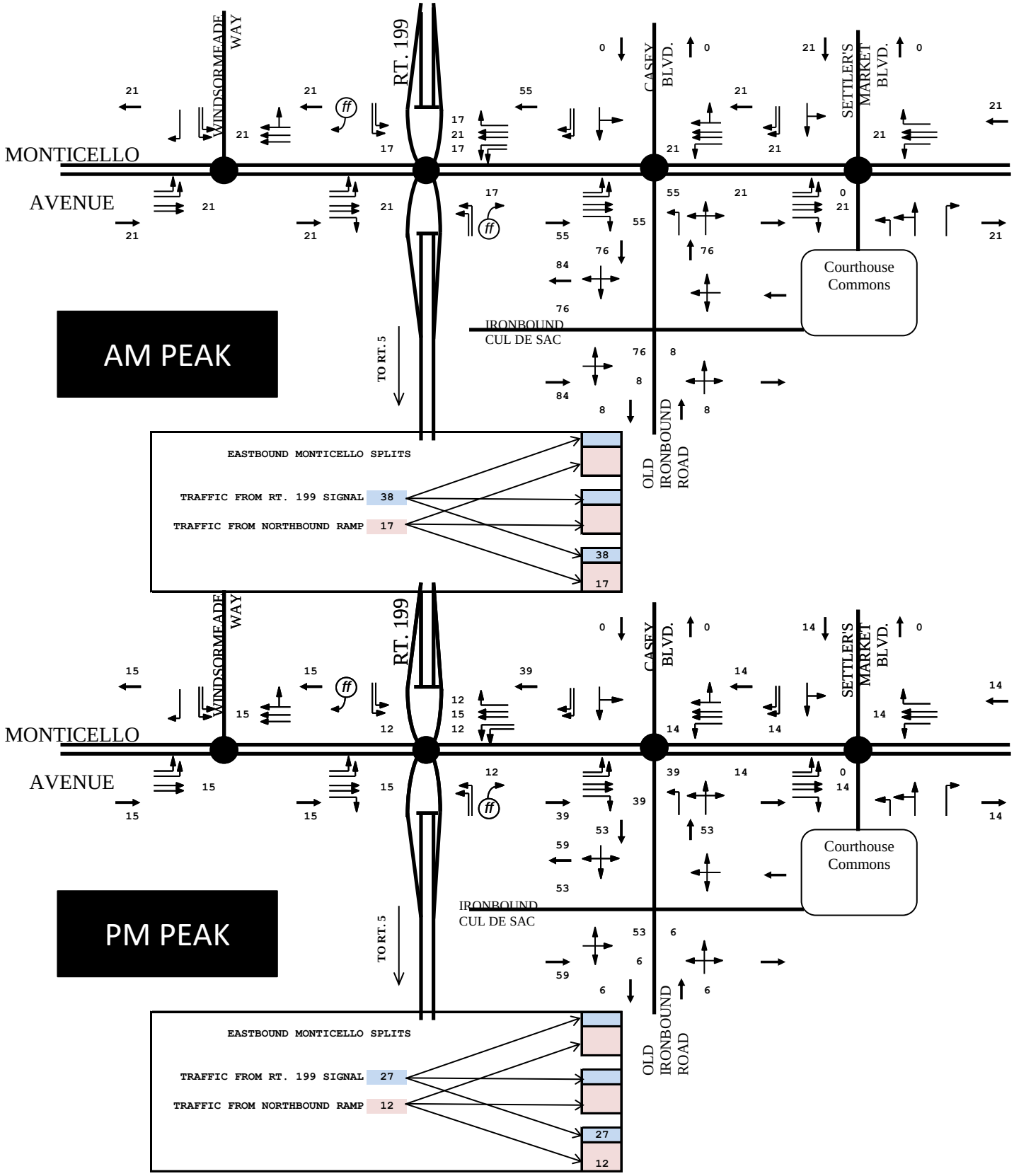
LOCATION: EASTBOUND MONTICELLO FROM RT. 199 TO CASEY BLVD.

CUMULATIVE 15 MINUTE COUNTS

	FROM SIGNAL				FROM NB RAMP				TOTAL		
TIME	EB	EB	EB		EB	EB	EB		EB	EB	EB
	Left	Thru	Right		Left	Thru	Right	Total	Left	Thru	Right
8:00 to 8:15	22		24		13	20	11	44	35		35
8:15 to 8:30	22		32		16	23	9	48	38		41
8:30 to 8:45	21		28		12	31	10	53	33		38
8:45 to 9:00	25		21		15	33	11	59	40		32
	90		105		56	107	41	204	146		146
				% SPLIT:	27.5%	52.5%	20.1%				

	FROM SIGNAL				FROM NB RAMP				TOTAL		
TIME	EB	EB	EB		EB	EB	EB		EB	EB	EB
	Left	Thru	Right		Left	Thru	Right	Total	Left	Thru	Right
4:00 to 4:15	43		26		17	30	3	50	60		29
4:15 to 4:30	42		19		17	31	10	58	59		29
4:30 to 4:45	44		14		11	31	7	49	55		21
4:45 to 5:00	47		22		18	23	3	44	65		25
	176		81		63	115	23	201	239		104
				% SPLIT:	31.3%	57.2%	11.4%				

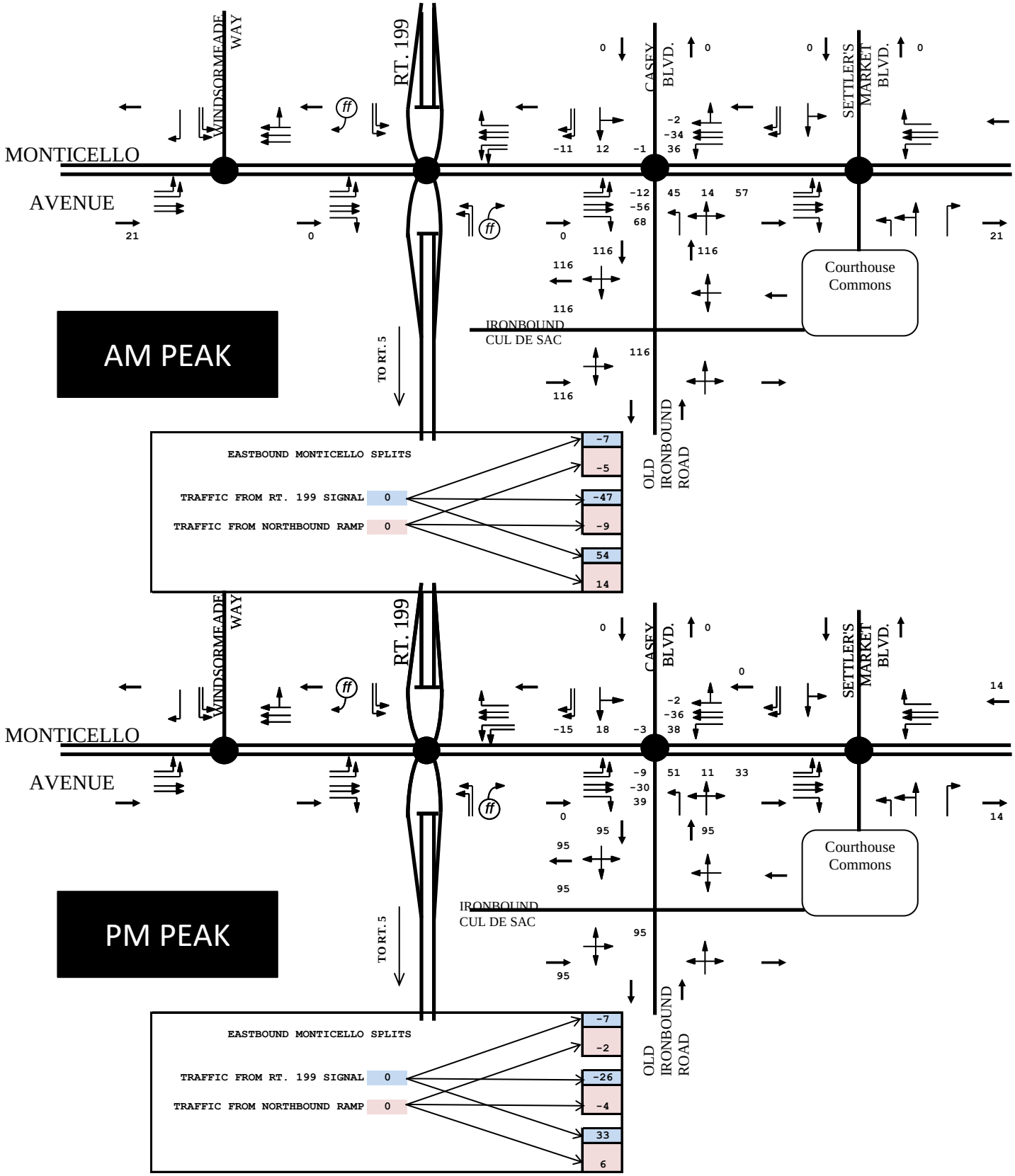
Exhibit F



IRONBOUND CROSSING PRIMARY TRIP ASSIGNMENTS

DRW Consultants, LLC
804-794-7312

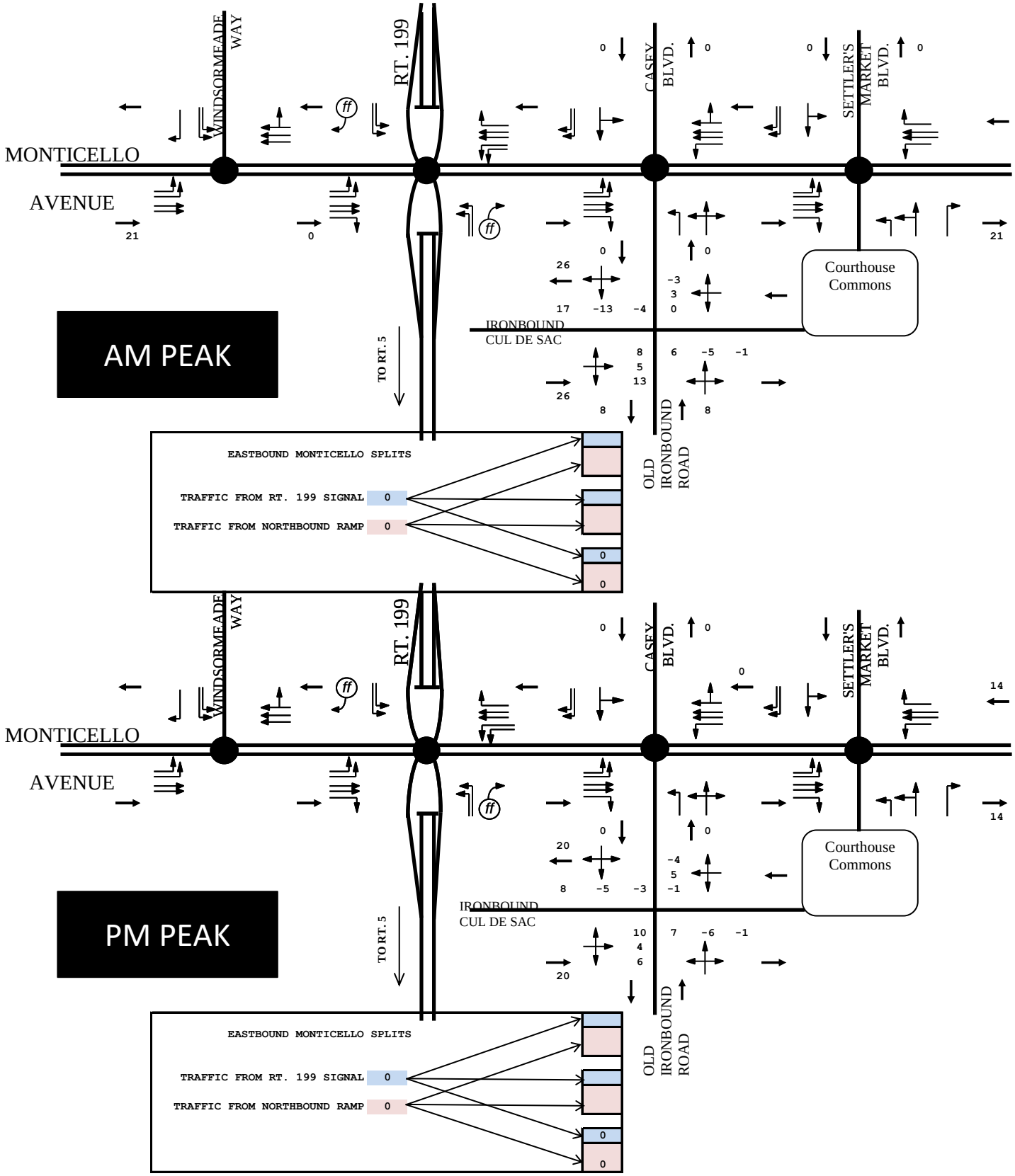
Exhibit G1



IRONBOUND CROSSING PASS BY TRIPS OFF SITE

DRW Consultants, LLC
804-794-7312

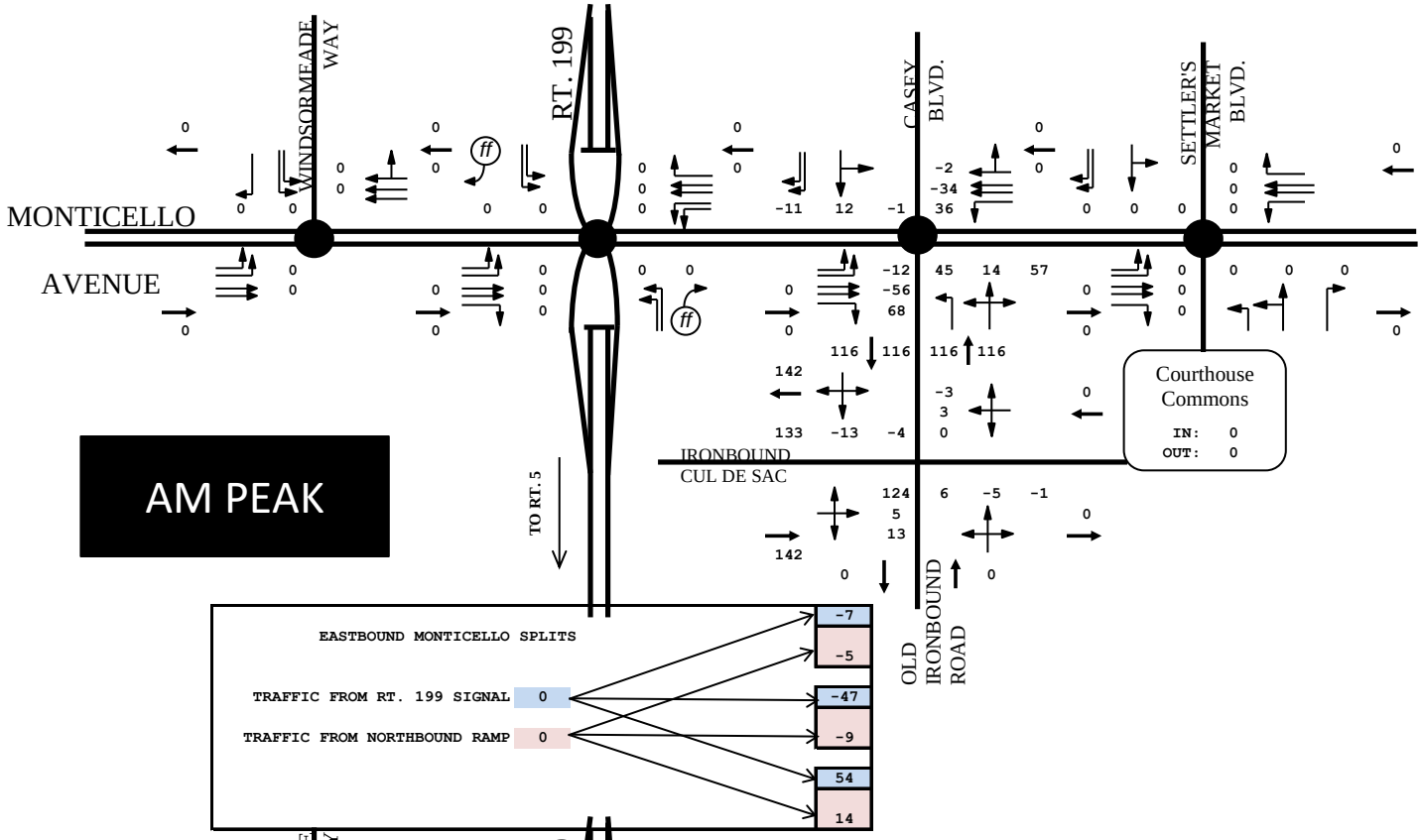
Exhibit G2

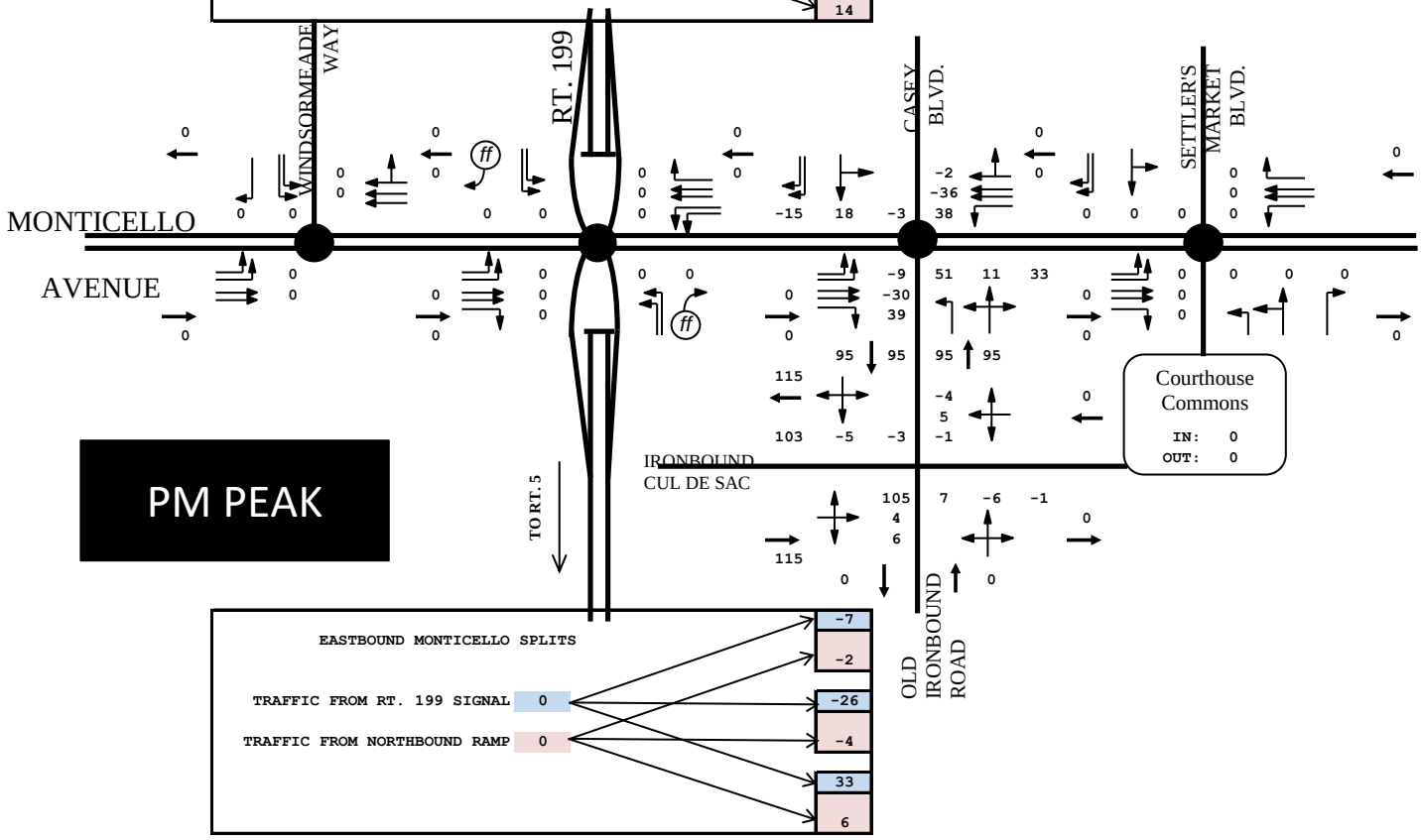


IRONBOUND CROSSING PASS BY TRIPS AT IRONBOUND ROAD/
COURTHOUSE COMMONS ENTRANCE

DRW Consultants, LLC
804-794-7312

Exhibit G3





IRONBOUND CROSSING
ALL PASS BY TRIPS

DRW Consultants, LLC
804-794-7312

Exhibit G4

Peggy Malone & Associates
904-992-8072

File Name : 1- Rt 199 SB Ramps & Monticello Ave
Site Code :
Start Date : 7/21/2021
Page No : 1

Groups Printed- Cars

	Monticello Ave Eastbound					Monticello Ave Westbound					Rt 199 SB On Ramp Northbound					RT 199 SB Off Ramp Southbound					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:00 AM	89	135	0	0	224	0	80	0	0	80	0	0	0	0	0	32	0	0	0	32	336
07:15 AM	94	157	0	0	251	0	83	0	0	83	0	0	0	0	0	49	0	0	0	49	383
07:30 AM	96	191	0	0	287	0	96	0	0	96	0	0	0	0	0	56	0	0	0	56	439
07:45 AM	94	241	0	0	335	0	121	0	0	121	0	0	0	0	0	75	0	0	0	75	531
Total	373	724	0	0	1097	0	380	0	0	380	0	0	0	0	0	212	0	0	0	212	1689
08:00 AM	77	211	0	0	288	0	118	0	0	118	0	0	0	0	0	73	0	0	0	73	479
08:15 AM	96	215	0	0	311	0	141	0	0	141	0	0	0	0	0	86	0	0	0	86	538
08:30 AM	82	219	0	0	301	0	145	0	0	145	0	0	0	0	0	87	0	0	0	87	533
08:45 AM	97	264	0	0	361	0	199	0	0	199	0	0	0	0	0	109	0	0	0	109	669
Total	352	909	0	0	1261	0	603	0	0	603	0	0	0	0	0	355	0	0	0	355	2219
Grand Total	725	1633	0	0	2358	0	983	0	0	983	0	0	0	0	0	567	0	0	0	567	3908
Apprch %	30.7	69.3	0	0		0	100	0	0		0	0	0	0		100	0	0	0		
Total %	18.6	41.8	0	0	60.3	0	25.2	0	0	25.2	0	0	0	0	0	14.5	0	0	0	14.5	

	Monticello Ave Eastbound					Monticello Ave Westbound					Rt 199 SB On Ramp Northbound					RT 199 SB Off Ramp Southbound					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	77	211	0	0	288	0	118	0	0	118	0	0	0	0	0	73	0	0	0	73	479
08:15 AM	96	215	0	0	311	0	141	0	0	141	0	0	0	0	0	86	0	0	0	86	538
08:30 AM	82	219	0	0	301	0	145	0	0	145	0	0	0	0	0	87	0	0	0	87	533
08:45 AM	**97**	**264**	0	0	**361**	0	**199**	0	0	**199**	0	0	0	0	0	**109**	0	0	0	**109**	**669**
Total Volume	352	909	0	0	1261	0	603	0	0	603	0	0	0	0	0	355	0	0	0	355	2219
% App. Total	27.9	72.1	0	0		0	100	0	0		0	0	0	0		100	0	0	0		
PHF	.907	.861	.000	.000	.873	.000	.758	.000	.000	.758	.000	.000	.000	.000	.000	.814	.000	.000	.000	.814	.829

Exhibit H1-1

Peggy Malone & Associates
904-992-8072

File Name : 1- Rt 199 SB Ramps & Monticello Ave
Site Code :
Start Date : 7/21/2021
Page No : 1

Groups Printed- Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Rt 199 SB On Ramp Northbound					RT 199 SB Off Ramp Southbound					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:00 AM	0	1	0	0	1	0	8	0	0	8	0	0	0	0	0	2	0	0	0	2	11
07:15 AM	4	1	0	0	5	0	8	0	0	8	0	0	0	0	0	2	0	0	0	2	15
07:30 AM	8	7	0	0	15	0	5	0	0	5	0	0	0	0	0	1	0	0	0	1	21
07:45 AM	7	1	0	0	8	0	7	0	0	7	0	0	0	0	0	2	0	0	0	2	17
Total	19	10	0	0	29	0	28	0	0	28	0	0	0	0	0	7	0	0	0	7	64
08:00 AM	8	1	0	0	9	0	14	0	0	14	0	0	0	0	0	5	0	0	0	5	28
08:15 AM	4	5	0	0	9	0	16	0	0	16	0	0	0	0	0	8	0	0	0	8	33
08:30 AM	1	10	0	0	11	0	5	0	0	5	0	0	0	0	0	1	0	0	0	1	17
08:45 AM	3	6	0	0	9	0	9	0	0	9	0	0	0	0	0	4	0	0	0	4	22
Total	16	22	0	0	38	0	44	0	0	44	0	0	0	0	0	18	0	0	0	18	100
Grand Total	35	32	0	0	67	0	72	0	0	72	0	0	0	0	0	25	0	0	0	25	164
Apprch %	52.2	47.8	0	0		0	100	0	0		0	0	0	0		100	0	0	0		
Total %	21.3	19.5	0	0	40.9	0	43.9	0	0	43.9	0	0	0	0	0	15.2	0	0	0	15.2	

	Monticello Ave Eastbound					Monticello Ave Westbound					Rt 199 SB On Ramp Northbound					RT 199 SB Off Ramp Southbound					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	**8**	1	0	0	9	0	14	0	0	14	0	0	0	0	0	5	0	0	0	5	28
08:15 AM	4	5	0	0	9	0	**16**	0	0	**16**	0	0	0	0	0	**8**	0	0	0	**8**	**33**
08:30 AM	1	**10**	0	0	**11**	0	5	0	0	5	0	0	0	0	0	1	0	0	0	1	17
08:45 AM	3	6	0	0	9	0	9	0	0	9	0	0	0	0	0	4	0	0	0	4	22
Total Volume	16	22	0	0	38	0	44	0	0	44	0	0	0	0	0	18	0	0	0	18	100
% App. Total	42.1	57.9	0	0		0	100	0	0		0	0	0	0		100	0	0	0		
PHF	.500	.550	.000	.000	.864	.000	.688	.000	.000	.688	.000	.000	.000	.000	.000	.563	.000	.000	.000	.563	.758

Exhibit H1-2

Peggy Malone & Associates
904-992-8072

File Name : 1- Rt 199 SB Ramps & Monticello Ave
Site Code :
Start Date : 7/21/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Ave Eastbound					Monticello Ave Westbound					Rt 199 SB On Ramp Northbound					RT 199 SB Off Ramp Southbound					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					

	Monticello Ave Eastbound					Monticello Ave Westbound					Rt 199 SB On Ramp Northbound					RT 199 SB Off Ramp Southbound					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit H1-3

Peggy Malone & Associates
904-992-8072

File Name : 1- Rt 199 SB Ramps & Monticello Ave
Site Code :
Start Date : 7/21/2021
Page No : 1

Groups Printed- Cars - Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Rt 199 SB On Ramp Northbound					RT 199 SB Off Ramp Southbound					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:00 AM	89	136	0	0	225	0	88	0	0	88	0	0	0	0	0	34	0	0	0	34	347
07:15 AM	98	158	0	0	256	0	91	0	0	91	0	0	0	0	0	51	0	0	0	51	398
07:30 AM	104	198	0	0	302	0	101	0	0	101	0	0	0	0	0	57	0	0	0	57	460
07:45 AM	101	242	0	0	343	0	128	0	0	128	0	0	0	0	0	77	0	0	0	77	548
Total	392	734	0	0	1126	0	408	0	0	408	0	0	0	0	0	219	0	0	0	219	1753
08:00 AM	85	212	0	0	297	0	132	0	0	132	0	0	0	0	0	78	0	0	0	78	507
08:15 AM	100	220	0	0	320	0	157	0	0	157	0	0	0	0	0	94	0	0	0	94	571
08:30 AM	83	229	0	0	312	0	150	0	0	150	0	0	0	0	0	88	0	0	0	88	550
08:45 AM	100	270	0	0	370	0	208	0	0	208	0	0	0	0	0	113	0	0	0	113	691
Total	368	931	0	0	1299	0	647	0	0	647	0	0	0	0	0	373	0	0	0	373	2319
Grand Total	760	1665	0	0	2425	0	1055	0	0	1055	0	0	0	0	0	592	0	0	0	592	4072
Apprch %	31.3	68.7	0	0		0	100	0	0		0	0	0	0		100	0	0	0		
Total %	18.7	40.9	0	0	59.6	0	25.9	0	0	25.9	0	0	0	0	0	14.5	0	0	0	14.5	
Cars	725	1633	0	0	2358	0	983	0	0	983	0	0	0	0	0	567	0	0	0	567	3908
% Cars	95.4	98.1	0	0	97.2	0	93.2	0	0	93.2	0	0	0	0	0	95.8	0	0	0	95.8	96
Trucks	35	32	0	0	67	0	72	0	0	72	0	0	0	0	0	25	0	0	0	25	164
% Trucks	4.6	1.9	0	0	2.8	0	6.8	0	0	6.8	0	0	0	0	0	4.2	0	0	0	4.2	4

	Monticello Ave Eastbound					Monticello Ave Westbound					Rt 199 SB On Ramp Northbound					RT 199 SB Off Ramp Southbound					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	85	212	0	0	297	0	132	0	0	132	0	0	0	0	0	78	0	0	0	78	507
08:15 AM	**100**	220	0	0	320	0	157	0	0	157	0	0	0	0	0	94	0	0	0	94	571
08:30 AM	83	229	0	0	312	0	150	0	0	150	0	0	0	0	0	88	0	0	0	88	550
08:45 AM	100	**270**	0	0	**370**	0	**208**	0	0	**208**	0	0	0	0	0	**113**	0	0	0	**113**	**691**
Total Volume	368	931	0	0	1299	0	647	0	0	647	0	0	0	0	0	373	0	0	0	373	2319
% App. Total	28.3	71.7	0	0		0	100	0	0		0	0	0	0		100	0	0	0		
PHF	.920	.862	.000	.000	.878	.000	.778	.000	.000	.778	.000	.000	.000	.000	.000	.825	.000	.000	.000	.825	.839

Exhibit H1-4

File Name: R:\Jobs 2021\21-280.va_Rt 199 & Monticello Ave, Williamsburg\Processed\1- Rt 199 SB Ramps & Monticell
Start Date: 7/21/2021
Start Time: 7:00:00 AM
Site Code:
Comment 1:
Comment 2:
Comment 3:
Comment 4:

	Monticello Ave Eastbound				Monticello Ave Westbound				Rt 199 SB On Ramp Northbound				RT 199 SB Off Ramp Southbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00:00 AM	89	136	0	0	0	88	0	0	0	0	0	0	34	0	0	0
7:15:00 AM	98	158	0	0	0	91	0	0	0	0	0	0	51	0	0	0
7:30:00 AM	104	198	0	0	0	101	0	0	0	0	0	0	57	0	0	0
7:45:00 AM	101	242	0	0	0	128	0	0	0	0	0	0	77	0	0	0
8:00:00 AM	85	212	0	0	0	132	0	0	0	0	0	0	78	0	0	0
8:15:00 AM	100	220	0	0	0	157	0	0	0	0	0	0	94	0	0	0
8:30:00 AM	83	229	0	0	0	150	0	0	0	0	0	0	88	0	0	0
8:45:00 AM	100	270	0	0	0	208	0	0	0	0	0	0	113	0	0	0
TOTAL	760	1665	0	0	0	1055	0	0	0	0	0	0	592	0	0	0
8-9 TOTAL	368	931	0	0	0	647	0	0	0	0	0	0	373	0	0	0
%T	4%	2%	#####	#####	#####	7%	#####	#####	#####	#####	#####	#####	5%	#####	#####	#####

EXHIBIT H1-5

Peggy Malone & Associates
904-992-8072

File Name : 2- Monticello Ave & Windsormeade Way
Site Code :
Start Date : 7/21/2021
Page No : 1

Groups Printed- Cars

	Monticello Ave Eastbound				Monticello Ave Westbound				Windsormeade Way Southbound				
Start Time	Thru	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
07:00 AM	188	2	0	190	15	98	0	113	1	42	0	43	346
07:15 AM	204	3	2	209	16	116	0	132	2	45	0	47	388
07:30 AM	251	3	1	255	22	129	0	151	4	34	0	38	444
07:45 AM	302	6	0	308	32	167	0	199	1	49	0	50	557
Total	945	14	3	962	85	510	0	595	8	170	0	178	1735
08:00 AM	218	10	0	228	25	163	0	188	2	64	0	66	482
08:15 AM	252	4	1	257	36	189	0	225	2	57	0	59	541
08:30 AM	253	4	0	257	21	209	0	230	1	65	0	66	553
08:45 AM	288	4	2	294	37	260	0	297	5	63	0	68	659
Total	1011	22	3	1036	119	821	0	940	10	249	0	259	2235
Grand Total	1956	36	6	1998	204	1331	0	1535	18	419	0	437	3970
Apprch %	97.9	1.8	0.3		13.3	86.7	0		4.1	95.9	0		
Total %	49.3	0.9	0.2	50.3	5.1	33.5	0	38.7	0.5	10.6	0	11	

	Monticello Ave Eastbound				Monticello Ave Westbound				Windsormeade Way Southbound				
Start Time	Thru	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	218	**10**	0	228	25	163	0	188	2	64	0	66	482
08:15 AM	252	4	1	257	36	189	0	225	2	57	0	59	541
08:30 AM	253	4	0	257	21	209	0	230	1	**65**	0	66	553
08:45 AM	**288**	4	**2**	**294**	**37**	**260**	0	**297**	**5**	63	0	**68**	**659**
Total Volume	1011	22	3	1036	119	821	0	940	10	249	0	259	2235
% App. Total	97.6	2.1	0.3		12.7	87.3	0		3.9	96.1	0		
PHF	.878	.550	.375	.881	.804	.789	.000	.791	.500	.958	.000	.952	.848

Exhibit H2-1

Peggy Malone & Associates
904-992-8072

File Name : 2- Monticello Ave & Windsormeade Way
Site Code :
Start Date : 7/21/2021
Page No : 1

Groups Printed- Trucks

	Monticello Ave Eastbound				Monticello Ave Westbound				Windsormeade Way Southbound				
Start Time	Thru	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
07:00 AM	1	0	0	1	1	9	0	10	0	0	0	0	11
07:15 AM	5	0	0	5	0	10	0	10	0	1	0	1	16
07:30 AM	12	0	0	12	0	5	0	5	0	1	0	1	18
07:45 AM	8	0	0	8	0	8	0	8	0	0	0	0	16
Total	26	0	0	26	1	32	0	33	0	2	0	2	61
08:00 AM	8	0	0	8	1	18	0	19	0	1	0	1	28
08:15 AM	8	0	0	8	3	19	0	22	0	1	0	1	31
08:30 AM	13	1	0	14	0	5	0	5	0	1	0	1	20
08:45 AM	5	0	0	5	1	12	0	13	0	1	0	1	19
Total	34	1	0	35	5	54	0	59	0	4	0	4	98
Grand Total	60	1	0	61	6	86	0	92	0	6	0	6	159
Apprch %	98.4	1.6	0		6.5	93.5	0		0	100	0		
Total %	37.7	0.6	0	38.4	3.8	54.1	0	57.9	0	3.8	0	3.8	

	Monticello Ave Eastbound				Monticello Ave Westbound				Windsormeade Way Southbound				
Start Time	Thru	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	8	0	0	8	1	18	0	19	0	**1**	0	**1**	28
08:15 AM	8	0	0	8	**3**	**19**	0	**22**	0	1	0	1	**31**
08:30 AM	**13**	**1**	0	**14**	0	5	0	5	0	1	0	1	20
08:45 AM	5	0	0	5	1	12	0	13	0	1	0	1	19
Total Volume	34	1	0	35	5	54	0	59	0	4	0	4	98
% App. Total	97.1	2.9	0		8.5	91.5	0		0	100	0		
PHF	.654	.250	.000	.625	.417	.711	.000	.670	.000	1.00	.000	1.00	.790

Exhibit H2-2

Peggy Malone & Associates
904-992-8072

File Name : 2- Monticello Ave & Windsormeade Way
Site Code :
Start Date : 7/21/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Ave Eastbound				Monticello Ave Westbound				Windsormeade Way Southbound				
Start Time	Thru	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		
Total %													

	Monticello Ave Eastbound				Monticello Ave Westbound				Windsormeade Way Southbound				
Start Time	Thru	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit H2-3

Peggy Malone & Associates
904-992-8072

File Name : 2- Monticello Ave & Windsormeade Way
Site Code :
Start Date : 7/21/2021
Page No : 1

Groups Printed- Cars - Trucks

	Monticello Ave Eastbound				Monticello Ave Westbound				Windsormeade Way Southbound				
Start Time	Thru	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
07:00 AM	189	2	0	191	16	107	0	123	1	42	0	43	357
07:15 AM	209	3	2	214	16	126	0	142	2	46	0	48	404
07:30 AM	263	3	1	267	22	134	0	156	4	35	0	39	462
07:45 AM	310	6	0	316	32	175	0	207	1	49	0	50	573
Total	971	14	3	988	86	542	0	628	8	172	0	180	1796
08:00 AM	226	10	0	236	26	181	0	207	2	65	0	67	510
08:15 AM	260	4	1	265	39	208	0	247	2	58	0	60	572
08:30 AM	266	5	0	271	21	214	0	235	1	66	0	67	573
08:45 AM	293	4	2	299	38	272	0	310	5	64	0	69	678
Total	1045	23	3	1071	124	875	0	999	10	253	0	263	2333
Grand Total	2016	37	6	2059	210	1417	0	1627	18	425	0	443	4129
Apprch %	97.9	1.8	0.3		12.9	87.1	0		4.1	95.9	0		
Total %	48.8	0.9	0.1	49.9	5.1	34.3	0	39.4	0.4	10.3	0	10.7	
Cars	1956	36	6	1998	204	1331	0	1535	18	419	0	437	3970
% Cars	97	97.3	100	97	97.1	93.9	0	94.3	100	98.6	0	98.6	96.1
Trucks	60	1	0	61	6	86	0	92	0	6	0	6	159
% Trucks	3	2.7	0	3	2.9	6.1	0	5.7	0	1.4	0	1.4	3.9

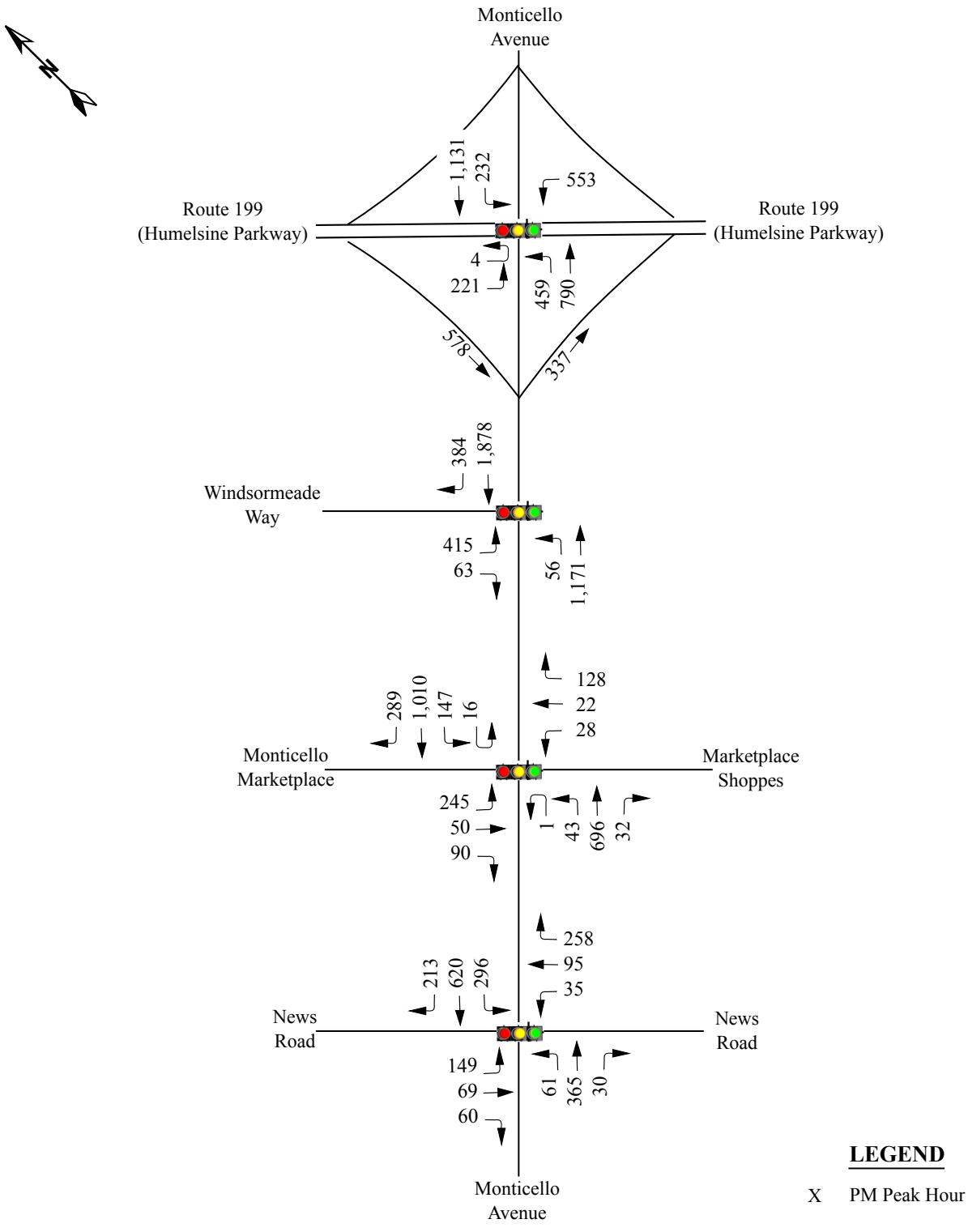
	Monticello Ave Eastbound				Monticello Ave Westbound				Windsormeade Way Southbound				
Start Time	Thru	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	226	**10**	0	236	26	181	0	207	2	65	0	67	510
08:15 AM	260	4	1	265	**39**	208	0	247	2	58	0	60	572
08:30 AM	266	5	0	271	21	214	0	235	1	**66**	0	67	573
08:45 AM	**293**	4	**2**	**299**	38	**272**	0	**310**	**5**	64	0	**69**	**678**
Total Volume	1045	23	3	1071	124	875	0	999	10	253	0	263	2333
% App. Total	97.6	2.1	0.3		12.4	87.6	0		3.8	96.2	0		
PHF	.892	.575	.375	.895	.795	.804	.000	.806	.500	.958	.000	.953	.860

Exhibit H2-4

File Name: R:\Jobs 2021\21-280.va_Rt 199 & Monticello Ave, Williamsburg\Processed\2- Monticello Ave & Windsormea
Start Date: 7/21/2021
Start Time: 7:00:00 AM
Site Code:
Comment 1:
Comment 2:
Comment 3:
Comment 4:

	Monticello Ave			Monticello Ave			Windsormeade Way									
Start Time	Thru	Left	U-Turn	Right	Thru	U-Turn	Right	Left	U-Turn							
7:00:00 AM	189	2	0	16	107	0	1	42	0							
7:15:00 AM	209	3	2	16	126	0	2	46	0							
7:30:00 AM	263	3	1	22	134	0	4	35	0							
7:45:00 AM	310	6	0	32	175	0	1	49	0							
8:00:00 AM	226	10	0	26	181	0	2	65	0							
8:15:00 AM	260	4	1	39	208	0	2	58	0							
8:30:00 AM	266	5	0	21	214	0	1	66	0							
8:45:00 AM	293	4	2	38	272	0	5	64	0							
TOTAL	2016	37	6	210	1417	0	18	425	0							
8-9 TOTAL	1045	23	3	124	875	0	10	253	0	0	0	0	0	0	0	0
%T	3%	4%	0%	4%	6%	#####	0%	2%	#####							

EXHBIT H2-5



RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Monticello Commons
James City County, Virginia

Existing (2016)
Peak Hour Traffic Volumes

Scale: Not to Scale | Figure 4

Exhibit H3

Burns Service Inc.

1202 Langdon Terrace Drive
Raleigh, NC, 27615

File Name : Williamsburg(Monticello and Windsormeade) PM Peak
Site Code :
Start Date : 11/17/2016
Page No : 1

Groups Printed- Cars + - Trucks

	Windsormeade Way Southbound					Monticello Avenue Westbound					Northbound					Monticello Avenue Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
16:00	5	0	98	0	103	97	408	0	0	505	0	0	0	0	0	0	265	12	0	277	885
16:15	20	0	104	0	124	102	444	0	0	546	0	0	0	0	0	0	275	13	0	288	958
16:30	16	0	118	0	134	96	419	0	0	515	0	0	0	0	0	0	285	14	0	299	948
16:45	12	0	112	0	124	96	455	0	0	551	0	0	0	0	0	0	300	15	0	315	990
Total	53	0	432	0	485	391	1726	0	0	2117	0	0	0	0	0	0	1125	54	0	1179	3781
17:00	18	0	97	0	115	94	436	0	0	530	0	0	0	0	0	0	268	16	0	284	929
17:15	15	0	104	0	119	107	490	0	0	597	0	0	0	0	0	0	300	11	0	311	1027
17:30	18	0	102	0	120	87	497	0	0	584	0	0	0	0	0	0	303	14	0	317	1021
17:45	10	48	77	0	135	115	416	36	0	567	0	0	0	0	0	0	207	6	0	213	915
Total	61	48	380	0	489	403	1839	36	0	2278	0	0	0	0	0	0	1078	47	0	1125	3892
Grand Total	114	48	812	0	974	794	3565	36	0	4395	0	0	0	0	0	0	2203	101	0	2304	7673
Apprch %	11.7	4.9	83.4	0		18.1	81.1	0.8	0		0	0	0	0		0	95.6	4.4	0		
Total %	1.5	0.6	10.6	0	12.7	10.3	46.5	0.5	0	57.3	0	0	0	0	0	0	28.7	1.3	0	30	
Cars +	114	48	812	0	974	793	3564	36	0	4393	0	0	0	0	0	0	2201	101	0	2302	7669
% Cars +	100	100	100	0	100	99.9	100	100	0	100	0	0	0	0	0	0	99.9	100	0	99.9	99.9
Trucks	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	2	0	0	2	4
% Trucks	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0.1

Exhibit H4-1

Burns Service Inc.

1202 Langdon Terrace Drive
Raleigh, NC, 27615

File Name : Williamsburg(Monticello and Windsormeade) PM Peak
Site Code :
Start Date : 11/17/2016
Page No : 2

	Windsormeade Way Southbound					Monticello Avenue Westbound					Northbound					Monticello Avenue Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:45																					
16:45	12	0	**112**	0	**124**	96	455	0	0	551	0	0	0	0	0	0	300	15	0	315	990
17:00	**18**	0	97	0	115	94	436	0	0	530	0	0	0	0	0	0	268	**16**	0	284	929
17:15	15	0	104	0	119	**107**	490	0	0	**597**	0	0	0	0	0	0	300	11	0	311	**1027**
17:30	18	0	102	0	120	87	**497**	0	0	584	0	0	0	0	0	0	**303**	14	0	**317**	1021
Total Volume	63	0	415	0	478	384	1878	0	0	2262	0	0	0	0	0	0	1171	56	0	1227	3967
% App. Total	13.2	0	86.8	0		17	83	0	0		0	0	0	0		0	95.4	4.6	0		
PHF	.875	.000	.926	.000	.964	.897	.945	.000	.000	.947	.000	.000	.000	.000	.000	.000	.966	.875	.000	.968	.966

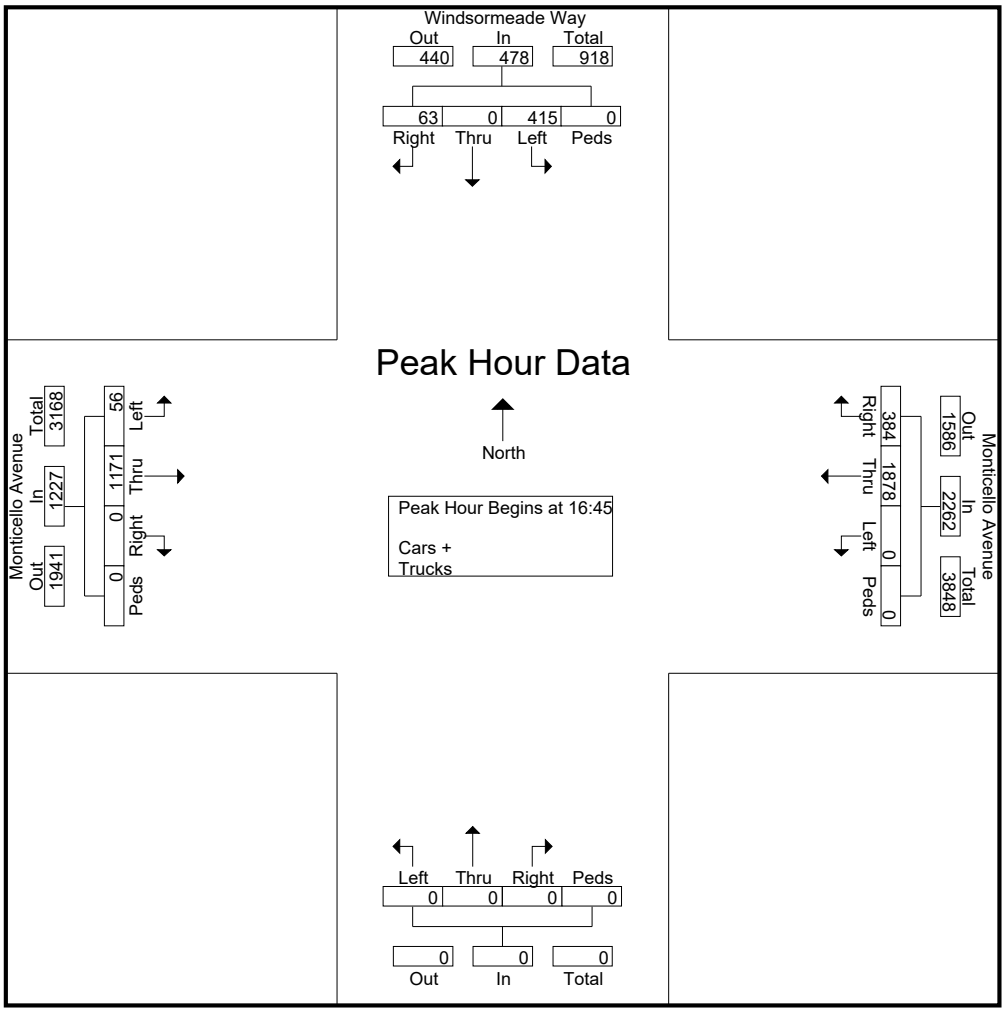


Exhibit H4-2

QUEUE STUDY Peggy Malone and Associates

Date:	4/11/2017	Observer: T. Ogg		
Intersection Name: Ironbound Rd. & Monticello Ave.				
AM Shift: 7:00-9:00 AM / PM SHIFT: 4:00-6:00 PM				
	Approach: NB Ironbound Rd.			
	Left (1 lane)		Left/Thru/Right (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)
7:00	1	25	1	25
	0	-	1	25
	0	-	2	50
	1	25	0	-
	0	-	2	50
	1	25	0	-
	0	-	1	25
	0	-	2	50
7:15	1	25	1	25
	0	-	2	75
	0	-	1	25
	0	-	1	25
	0	-	1	25
	1	25	0	-
7:30	1	25	1	25
	0	-	2	50
	1	25	0	-
	0	-	1	25
	1	25	3	125
	1	25	3	75
7:45	0	-	1	25
	1	25	1	25
	2	50	0	-
	1	25	2	50
	1	25	1	25
	3	75	3	100
MAX Q	3	75	3	125

Notes:

1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'
2. Signalized Intersection: Measure all Queues at green light start
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both

Date:	4/11/2017	Observer: T. Ogg		
Intersection Name: Ironbound Rd. & Monticello Ave.				
AM Shift: 7:00-9:00 AM / PM SHIFT: 4:00-6:00 PM				
	Approach: NB Ironbound Rd.			
	Left (1 lane)		Left/Thru/Right (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)
8:00	0	-	3	100
	0	-	1	25
	2	100	2	50
	1	75	2	100
	1	25	2	75
	1	25	0	-
8:15	0	-	3	75
	1	25	0	-
	2	50	2	50
	3	100	0	-
	1	25	1	25
	1	25	1	25
8:30	0	-	2	75
	1	25	1	25
	1	25	0	-
	0	-	3	100
	0	-	1	25
	2	50	0	-
	1	25	1	25
	0	-	1	25
8:45	2	50	1	25
	1	25	0	-
	1	25	0	-
	1	25	2	50
	0	-	2	50
	1	25	0	-
	1	25	1	25
	3	75	3	75
MAX Q	3	100	3	100

Notes:

1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'
2. Signalized Intersection: Measure all Queues at green light start
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both

Date:	4/11/2017	Observer: T. Ogg		
Intersection Name: Ironbound Rd. & Monticello Ave.				
AM Shift: 7:00-9:00 AM / PM SHIFT: 4:00-6:00 PM				
	Approach: NB Ironbound Rd.			
	Left (1 lane)		Left/Thru/Right (1 lane)	
Time:	# veh	distance (feet)	# veh	distance (feet)
4:00	1	25	5	125
	4	100	8	200
	3	75	4	100
	4	100	5	125
	8	200	6	150
	3	75	2	50
4:15	4	100	4	100
	5	125	1	25
	5	125	3	75
	5	125	10	250
	3	75	5	125
	3	75	6	150
4:30	5	125	2	50
	1	25	5	125
	2	50	5	125
	4	100	6	150
	2	50	3	75
	1	25	5	125
	4	100	6	150
4:45	3	75	4	125
	2	50	2	50
	6	150	5	125
	3	75	5	125
	6	150	7	175
	7	175	4	100
MAX Q	8	200	10	250

Date:	4/11/2017	Observer: T. Ogg		
Intersection Name: Ironbound Rd. & Monticello Ave.				
AM Shift: 7:00-9:00 AM / PM SHIFT: 4:00-6:00 PM				
5:00	2	50	3	100
	5	125	11	275
	2	50	0	-
	6	175	6	150
	4	100	2	50
	4	100	9	225
	3	75	4	100
5:15	6	150	0	-
	2	50	9	225
	4	100	2	50
	9	225	9	225
	5	125	3	75
	4	100	3	75
	5	125	4	100
5:30	4	100	2	50
	1	25	3	75
	1	25	3	75
	3	75	4	100
	2	50	4	100
	5	125	3	75
5:45	0	-	1	25
	2	50	1	25
	1	25	0	-
	5	125	3	75
	5	125	8	200
	0	-	2	50
MAX Q	9	225	11	275
Notes:				
1. Passenger Vehicles 25', Medium Trucks 50', Heavy Trucks 75'				
2. Signalized Intersection: Measure all Queues at green light start				
3. Approach movements with more than one lane - measured queue distance of longest lane, with # of vehicles in both				

SIGNALIZED MAXIMUM QUEUE RECORD

Location: Ironbound Road Northbound

At Monticello Ave/Casey Blvd

COUNTS CONDUCTED BY DRW CONSULTANTS, LLC

Date: Thu 5/24/2018

TIME	Left Turn	Left/Thru/Right			
4:00 PM	6	4			
	2	5			
	0	8			
	0	4			
	2	5			
	3	9			
	3	8			
4:15 PM	3	4			
	3	0			
	7	7			
	5	5			
	2	2			
	2	1			
	2	7			
4:30 PM	6	4			
	5	5			
	3	8			
	3	7			
	5	4			
	2	5			
4:45 PM	1	0			
	3	4			
	5	5			
	4	1			
	4	4			
	4	4			
	5	5			
MAX Q	7	9			
	175	225			

Exhibit I2-1

SIGNALIZED MAXIMUM QUEUE RECORD					
Location:	Ironbound Road Northbound				
	At Monticello Ave/Casey Blvd				
COUNTS CONDUCTED BY DRW CONSULTANTS, LLC					
Date:	Thu 5/24/2018				
5:00 PM	4	6			
	7	7			
	1	8			
	6	7			
	1	5			
	7	0			
	1	5			
5:15 PM	0	11			
	4	7			
	4	7			
	3	3			
	6	7			
	4	7			
5:30 PM	0	4			
	3	3			
	4	3			
	5	4			
	1	4			
	6	2			
	1	1			
5:45 PM	1	5			
	2	6			
	5	0			
	3	1			
	3	2			
	2	2			
MAX Q	7	11			
	175	275			

Exhibit I2-2

Queue Study VA21-149

Ironbound Rd NB to Monticello Ave Date: 4/13/2021

Observer: Todd Shift: AM (7:00AM-9:00AM)

	Approach: NB			
	Left 1 Lane (approx 283')		Left/Thru/Right 1 Lane (approx 605')	
Time:	# veh	dist.	# veh	dist.
7:00 AM	1	25	1	25
	-	-	2	50
	-	-	1	25
	-	-	1	25
	-	-	1	25
	-	-	3	75
	1	50	3	75
7:15 AM	-	-	1	25
	1	25	2	75
	-	-	1	25
	1	25	-	-
7:30 AM	1	25	1	25
	-	-	2	50
	1	25	1	50
	1	25	5	150
	-	-	1	50
	-	-	1	25
	1	25	-	-
7:45 AM	-	-	1	50
	-	-	3	150
	2	50	-	-
	1	25	1	25
	2	50	-	-
	3	75	2	50
	1	25	3	75
MAX	3	75	5	150
8:00 AM	-	-	1	25
	1	25	2	50
	4	100	-	-
	1	25	-	-
	1	25	5	150
	-	-	2	50
	2	50	-	-
8:15 AM	1	25	-	-
	2	50	1	25
	-	-	6	150
	-	-	1	25
	-	-	6	150
	-	-	1	25
8:30 AM	3	75	2	50
	3	75	-	-
	-	-	1	25
	3	75	-	-
	1	25	4	150
	4	100	-	-
	3	75	2	50
	2	50	1	50
8:45 AM	4	100	5	175
	2	75	2	50
	2	50	2	50
	3	100	1	25
	-	-	2	50
	2	50	-	-
	2	50	1	25
9:00 AM	1	25	2	50
MAX	4	100	6	175

25 Ft for Car

50 Ft for Mid Truck/75 Ft Heavy Truck

"T" for Mid / "TT" for Heavy

EXHIBIT I3-1

Queue Study VA21-149

Ironbound Rd NB to Monticello Ave Date: 4/13/2021

Observer: Todd Shift: PM (4:00PM-6:00PM)

	Approach: NB			
	Left 1 Lane (approx 283')		Left/Thru/Right 1 Lane (approx 605')	
Time:	# veh	dist.	# veh	dist.
4:00 PM	4	100	5	125
	3	75	7	175
	5	125	3	75
	4	100	3	75
	3	75	6	150
	2	50	7	175
4:15 PM	3	75	7	175
	3	75	9	225
	1	25	2	50
	5	125	3	75
	5	125	6	150
	1	25	2	50
	3	75	2	50
4:30 PM	3	75	5	150
	4	100	5	125
	2	50	4	100
	2	50	7	175
	2	50	4	100
	2	50	2	50
	7	175	2	50
4:45 PM	2	50	7	175
	3	75	2	50
	4	100	2	50
	2	50	2	50
	4	100	4	100
	2	50	1	25
	4	100	4	100
MAX Q	7	175	9	225
5:00 PM	1	25	2	50
	3	75	5	150
	6	150	5	125
	2	50	3	75
	5	125	6	150
	2	50	2	50
	2	50	4	100
5:15 PM	3	75	7	175
	3	75	5	125
	3	75	4	100
	2	50	3	75
	5	125	8	200
	-	-	5	125
	1	25	4	100
5:30 PM	6	150	5	125
	3	75	2	50
	1	25	4	100
	1	25	2	50
	6	150	1	25
	3	75	3	75
5:45 PM	1	25	2	50
	1	25	4	100
	3	75	1	25
	2	50	-	-
	1	25	5	125
	1	25	4	100
6:00PM	2	50	1	25
MAX	6	150	8	200

25 Ft for Car

50 Ft for Mid Truck/75 Ft Heavy Truck

"T" for Mid / "TT" for Heavy

EXHIBIT I3-2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	1055	901	127	257	11
Future Volume (vph)	24	1055	901	127	257	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95	0.91		0.97	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3367	3505	4814		3433	1615
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3367	3505	4814		3433	1615
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	28	1227	1048	148	299	13
RTOR Reduction (vph)	0	0	10	0	0	11
Lane Group Flow (vph)	28	1227	1186	0	299	2
Heavy Vehicles (%)	4%	3%	6%	4%	2%	0%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	3.7	105.0	93.3		17.0	17.0
Effective Green, g (s)	7.7	107.0	95.3		20.0	20.0
Actuated g/C Ratio	0.06	0.79	0.71		0.15	0.15
Clearance Time (s)	8.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	2.0	5.0	5.0		3.0	3.0
Lane Grp Cap (vph)	192	2778	3398		508	239
v/s Ratio Prot	0.01	c0.35	0.25		c0.09	
v/s Ratio Perm						0.00
v/c Ratio	0.15	0.44	0.35		0.59	0.01
Uniform Delay, d1	60.5	4.5	7.7		53.7	49.0
Progression Factor	1.00	1.00	0.63		1.00	1.00
Incremental Delay, d2	0.1	0.5	0.3		1.7	0.0
Delay (s)	60.7	5.0	5.1		55.4	49.1
Level of Service	E	A	A		E	D
Approach Delay (s)		6.2	5.1		55.1	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	302	626	384	123	402	140	245	0	238	230	0	381
Future Volume (vph)	302	626	384	123	402	140	245	0	238	230	0	381
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97		1.00	0.97		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3433	3539	1553	3367	3471	1482	3367		1568	3433		1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3433	3539	1553	3367	3471	1482	3367		1568	3433		1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	311	645	396	127	414	144	253	0	245	237	0	393
RTOR Reduction (vph)	0	0	158	0	0	56	0	0	0	0	0	0
Lane Group Flow (vph)	311	645	238	127	414	88	253	0	245	237	0	393
Heavy Vehicles (%)	2%	2%	4%	4%	4%	9%	4%	0%	3%	2%	0%	5%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot		Free	Prot		Free
Protected Phases	5	2		1	6		3			7		
Permitted Phases			2			6			Free			Free
Actuated Green, G (s)	18.0	78.2	78.2	19.4	79.1	79.1	15.9		135.0	15.4		135.0
Effective Green, g (s)	22.0	81.2	81.2	22.9	82.1	82.1	18.9		135.0	18.9		135.0
Actuated g/C Ratio	0.16	0.60	0.60	0.17	0.61	0.61	0.14		1.00	0.14		1.00
Clearance Time (s)	8.0	7.0	7.0	7.5	7.0	7.0	7.0			7.5		
Vehicle Extension (s)	3.5	5.0	5.0	3.5	5.0	5.0	3.5			3.5		
Lane Grp Cap (vph)	559	2128	934	571	2110	901	471		1568	480		1538
v/s Ratio Prot	c0.09	c0.18		0.04	0.12		c0.08			0.07		
v/s Ratio Perm			0.15			0.06			0.16			c0.26
v/c Ratio	0.56	0.30	0.26	0.22	0.20	0.10	0.54		0.16	0.49		0.26
Uniform Delay, d1	52.0	13.1	12.7	48.4	11.8	11.0	54.0		0.0	53.6		0.0
Progression Factor	0.85	1.03	1.75	0.94	0.68	0.91	1.00		1.00	1.00		1.00
Incremental Delay, d2	1.2	0.3	0.6	0.2	0.2	0.2	1.3		0.2	0.9		0.4
Delay (s)	45.3	13.8	22.7	45.6	8.3	10.2	55.3		0.2	54.6		0.4
Level of Service	D	B	C	D	A	B	E		A	D		A
Approach Delay (s)		23.7			15.6			28.2			20.8	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	732	213	6	429	23	102	11	9	18	8	134
Future Volume (vph)	149	732	213	6	429	23	102	11	9	18	8	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91		0.95	0.95			1.00	0.88
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.97	1.00
Satd. Flow (prot)	3433	3574	1538	1543	5039		1588	1596			1749	2760
Flt Permitted	0.95	1.00	1.00	0.31	1.00		0.95	0.97			0.97	1.00
Satd. Flow (perm)	3433	3574	1538	504	5039		1588	1596			1749	2760
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	1.00
Adj. Flow (vph)	155	762	222	6	447	24	106	11	9	19	8	134
RTOR Reduction (vph)	0	0	80	0	3	0	0	4	0	0	0	0
Lane Group Flow (vph)	155	763	142	6	468	0	61	61	0	0	27	134
Heavy Vehicles (%)	2%	1%	5%	17%	2%	5%	8%	9%	0%	7%	0%	3%
Turn Type	Prot	NA	Perm	pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		4	4		3	3	3 5
Permitted Phases			2	6								
Actuated Green, G (s)	19.0	81.8	81.8	65.9	64.9		11.1	11.1			8.0	27.0
Effective Green, g (s)	22.5	86.4	86.4	75.1	69.5		15.8	15.8			11.2	33.4
Actuated g/C Ratio	0.17	0.64	0.64	0.56	0.51		0.12	0.12			0.08	0.25
Clearance Time (s)	7.5	8.6	8.6	8.6	8.6		8.7	8.7			7.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	572	2287	984	323	2594		185	186			145	682
v/s Ratio Prot	c0.05	c0.21		0.00	0.09		c0.04	0.04			0.02	c0.05
v/s Ratio Perm			0.09	0.01								
v/c Ratio	0.27	0.33	0.14	0.02	0.18		0.33	0.33			0.19	0.20
Uniform Delay, d1	49.1	11.1	9.6	18.3	17.5		54.7	54.7			57.7	40.2
Progression Factor	1.07	0.66	1.48	0.32	0.47		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.1	0.4	0.3	0.0	0.2		1.0	1.0			0.6	0.1
Delay (s)	52.7	7.7	14.5	5.9	8.4		55.8	55.7			58.3	40.3
Level of Service	D	A	B	A	A		E	E			E	D
Approach Delay (s)		15.1			8.3			55.8			43.3	
Approach LOS		B			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	623	89	43	367	16	64	10	47	12	8	27
Future Volume (vph)	47	623	89	43	367	16	64	10	47	12	8	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	3539	1599	1805	3471	1524	1715	1739	1583	1805	1805	1534
Flt Permitted	0.95	1.00	1.00	0.34	1.00	1.00	0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	3539	1599	637	3471	1524	1715	1739	1583	1805	1805	1534
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	55	724	103	50	427	19	74	12	55	14	9	31
RTOR Reduction (vph)	0	0	36	0	0	8	0	0	50	0	0	29
Lane Group Flow (vph)	55	724	67	50	427	11	37	49	5	14	9	2
Heavy Vehicles (%)	4%	2%	1%	0%	4%	6%	0%	0%	2%	0%	0%	0%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Prot
Protected Phases	5	2		1	6		4	4		3	3	3
Permitted Phases			2	6		6			4			
Actuated Green, G (s)	12.2	82.8	82.8	80.8	76.1	76.1	8.9	8.9	8.9	5.9	5.9	5.9
Effective Green, g (s)	16.0	87.4	87.4	90.0	80.7	80.7	12.6	12.6	12.6	9.7	9.7	9.7
Actuated g/C Ratio	0.12	0.65	0.65	0.67	0.60	0.60	0.09	0.09	0.09	0.07	0.07	0.07
Clearance Time (s)	7.8	8.6	8.6	8.6	8.6	8.6	7.7	7.7	7.7	7.8	7.8	7.8
Vehicle Extension (s)	2.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	399	2291	1035	505	2074	911	160	162	147	129	129	110
v/s Ratio Prot	c0.02	c0.20		0.01	0.12		0.02	c0.03		c0.01	0.00	0.00
v/s Ratio Perm			0.04	0.06		0.01			0.00			
v/c Ratio	0.14	0.32	0.06	0.10	0.21	0.01	0.23	0.30	0.03	0.11	0.07	0.02
Uniform Delay, d1	53.3	10.6	8.8	11.5	12.5	11.0	56.7	57.1	55.7	58.6	58.4	58.2
Progression Factor	0.91	0.34	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.4	0.1	0.1	0.2	0.0	0.7	1.1	0.1	0.4	0.2	0.1
Delay (s)	48.6	3.9	8.9	11.6	12.7	11.0	57.5	58.2	55.8	59.0	58.7	58.3
Level of Service	D	A	A	B	B	B	E	E	E	E	E	E
Approach Delay (s)		7.3			12.5			57.0			58.5	
Approach LOS		A			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	58	1228	1970	403	435	66
Future Volume (vph)	58	1228	1970	403	435	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95	0.91		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3502	3574	5013		3502	1615
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3502	3574	5013		3502	1615
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	60	1266	2031	415	448	68
RTOR Reduction (vph)	0	0	21	0	0	56
Lane Group Flow (vph)	60	1266	2425	0	448	12
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	4.0	100.4	88.4		21.6	21.6
Effective Green, g (s)	8.0	102.4	90.4		24.6	24.6
Actuated g/C Ratio	0.06	0.76	0.67		0.18	0.18
Clearance Time (s)	8.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	2.0	5.0	5.0		3.0	3.0
Lane Grp Cap (vph)	207	2710	3356		638	294
v/s Ratio Prot	0.02	c0.35	c0.48		c0.13	
v/s Ratio Perm						0.01
v/c Ratio	0.29	0.47	0.72		0.70	0.04
Uniform Delay, d1	60.8	6.1	14.3		51.8	45.5
Progression Factor	1.00	1.00	0.40		1.00	1.00
Incremental Delay, d2	0.3	0.6	1.1		3.5	0.1
Delay (s)	61.1	6.7	6.8		55.3	45.5
Level of Service	E	A	A		E	D
Approach Delay (s)		9.1	6.8		54.0	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	481	829	353	243	1187	365	580	0	232	236	0	606
Future Volume (vph)	481	829	353	243	1187	365	580	0	232	236	0	606
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	1.0	4.0	4.0	1.0	4.0		4.0	4.0		4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97		1.00	0.97		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3502	3610	1599	3502	3574	1599	3467		1615	3502		1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3502	3610	1599	3502	3574	1599	3467		1615	3502		1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	491	846	360	248	1211	372	592	0	237	241	0	618
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	491	846	360	248	1211	372	592	0	237	241	0	618
Heavy Vehicles (%)	0%	0%	1%	0%	1%	1%	1%	0%	0%	0%	0%	1%
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot		Free	Prot		Free
Protected Phases	5	2		1	6		3			7		
Permitted Phases			Free			Free			Free			Free
Actuated Green, G (s)	22.7	72.8	135.0	13.0	62.6	135.0	27.7		135.0	27.2		135.0
Effective Green, g (s)	26.7	75.8	135.0	16.5	65.6	135.0	30.7		135.0	30.7		135.0
Actuated g/C Ratio	0.20	0.56	1.00	0.12	0.49	1.00	0.23		1.00	0.23		1.00
Clearance Time (s)	8.0	7.0		7.5	7.0		7.0			7.5		
Vehicle Extension (s)	3.5	5.0		3.5	5.0		3.5			3.5		
Lane Grp Cap (vph)	692	2026	1599	428	1736	1599	788		1615	796		1599
v/s Ratio Prot	c0.14	0.23		0.07	c0.34		c0.17			0.07		
v/s Ratio Perm			0.23			0.23			0.15			0.39
v/c Ratio	0.71	0.42	0.23	0.58	0.70	0.23	0.75		0.15	0.30		0.39
Uniform Delay, d1	50.5	17.0	0.0	56.0	27.0	0.0	48.6		0.0	43.3		0.0
Progression Factor	1.15	0.72	1.00	0.98	0.65	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	3.0	0.6	0.3	1.7	2.0	0.3	4.2		0.2	0.3		0.7
Delay (s)	61.4	12.7	0.3	56.7	19.5	0.3	52.8		0.2	43.5		0.7
Level of Service	E	B	A	E	B	A	D		A	D		A
Approach Delay (s)		24.2			20.7			37.7			12.7	
Approach LOS		C			C			D			B	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	246	878	173	8	1090	74	260	25	14	91	47	445
Future Volume (vph)	246	878	173	8	1090	74	260	25	14	91	47	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91		0.95	0.95			1.00	0.88
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96			0.97	1.00
Satd. Flow (prot)	3502	3574	1568	1805	5090		1715	1716			1840	2842
Flt Permitted	0.95	1.00	1.00	0.18	1.00		0.95	0.96			0.97	1.00
Satd. Flow (perm)	3502	3574	1568	348	5090		1715	1716			1840	2842
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	265	944	186	9	1172	80	280	27	15	98	51	478
RTOR Reduction (vph)	0	0	87	0	6	0	0	3	0	0	0	0
Lane Group Flow (vph)	265	944	99	9	1246	0	162	157	0	0	149	478
Heavy Vehicles (%)	0%	1%	3%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		4	4		3	3	3 5
Permitted Phases			2	6								
Actuated Green, G (s)	23.3	67.1	67.1	47.7	46.3		17.3	17.3			16.1	39.4
Effective Green, g (s)	26.8	71.7	71.7	56.9	50.9		22.0	22.0			19.3	45.8
Actuated g/C Ratio	0.20	0.53	0.53	0.42	0.38		0.16	0.16			0.14	0.34
Clearance Time (s)	7.5	8.6	8.6	8.6	8.6		8.7	8.7			7.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	695	1898	832	211	1919		279	279			263	964
v/s Ratio Prot	0.08	c0.26		0.00	c0.24		c0.09	0.09			c0.08	c0.17
v/s Ratio Perm			0.06	0.02								
v/c Ratio	0.38	0.50	0.12	0.04	0.65		0.58	0.56			0.57	0.50
Uniform Delay, d1	46.9	20.2	15.8	36.3	34.7		52.2	52.1			53.9	35.4
Progression Factor	0.87	0.63	0.55	0.38	0.56		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.1	0.9	0.3	0.0	1.5		3.1	2.6			2.8	0.4
Delay (s)	41.2	13.6	9.0	13.8	20.9		55.3	54.7			56.7	35.8
Level of Service	D	B	A	B	C		E	D			E	D
Approach Delay (s)		18.2			20.8			55.0			40.8	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	836	58	71	1004	98	69	17	70	34	23	99
Future Volume (vph)	89	836	58	71	1004	98	69	17	70	34	23	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	3574	1615	1805	3574	1615	1715	1746	1615	1805	1805	1519
Flt Permitted	0.95	1.00	1.00	0.23	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	3574	1615	430	3574	1615	1715	1746	1615	1805	1805	1519
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	96	899	62	76	1080	105	74	18	75	37	25	106
RTOR Reduction (vph)	0	0	25	0	0	44	0	0	67	0	0	96
Lane Group Flow (vph)	96	899	37	76	1080	61	37	55	8	37	25	10
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Prot
Protected Phases	5	2		1	6		4	4		3	3	3
Permitted Phases			2	6		6			4			
Actuated Green, G (s)	9.8	76.4	76.4	74.2	74.2	74.2	10.6	10.6	10.6	8.5	8.5	8.5
Effective Green, g (s)	13.6	81.0	81.0	78.8	78.8	78.8	14.3	14.3	14.3	12.3	12.3	12.3
Actuated g/C Ratio	0.10	0.60	0.60	0.58	0.58	0.58	0.11	0.11	0.11	0.09	0.09	0.09
Clearance Time (s)	7.8	8.6	8.6	8.6	8.6	8.6	7.7	7.7	7.7	7.8	7.8	7.8
Vehicle Extension (s)	2.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	352	2144	969	367	2086	942	181	184	171	164	164	138
v/s Ratio Prot	0.03	c0.25		0.02	c0.30		0.02	c0.03		c0.02	0.01	0.01
v/s Ratio Perm			0.02	0.10		0.04			0.00			
v/c Ratio	0.27	0.42	0.04	0.21	0.52	0.07	0.20	0.30	0.05	0.23	0.15	0.07
Uniform Delay, d1	56.1	14.4	11.1	13.8	16.8	12.2	55.2	55.7	54.2	56.9	56.5	56.1
Progression Factor	0.74	0.42	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.5	0.1	0.3	0.9	0.1	0.6	0.9	0.1	0.7	0.4	0.2
Delay (s)	41.6	6.6	11.1	14.1	17.7	12.3	55.7	56.6	54.3	57.6	57.0	56.3
Level of Service	D	A	B	B	B	B	E	E	D	E	E	E
Approach Delay (s)		10.0			17.0			55.4			56.7	
Approach LOS		B			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	58	1228	1970	403	435	66
Future Volume (vph)	58	1228	1970	403	435	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95	0.91		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3502	3574	5013		3502	1615
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3502	3574	5013		3502	1615
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	60	1266	2031	415	448	68
RTOR Reduction (vph)	0	0	21	0	0	56
Lane Group Flow (vph)	60	1266	2425	0	448	12
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	4.0	100.4	88.4		21.6	21.6
Effective Green, g (s)	8.0	102.4	90.4		24.6	24.6
Actuated g/C Ratio	0.06	0.76	0.67		0.18	0.18
Clearance Time (s)	8.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	2.0	5.0	5.0		3.0	3.0
Lane Grp Cap (vph)	207	2710	3356		638	294
v/s Ratio Prot	0.02	c0.35	c0.48		c0.13	
v/s Ratio Perm						0.01
v/c Ratio	0.29	0.47	0.72		0.70	0.04
Uniform Delay, d1	60.8	6.1	14.3		51.8	45.5
Progression Factor	1.00	1.00	0.46		1.00	1.00
Incremental Delay, d2	0.3	0.6	1.1		3.5	0.1
Delay (s)	61.1	6.7	7.6		55.3	45.5
Level of Service	E	A	A		E	D
Approach Delay (s)		9.1	7.6		54.0	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	481	829	353	243	1187	365	580	0	232	236	0	606
Future Volume (vph)	481	829	353	243	1187	365	580	0	232	236	0	606
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	1.0	4.0	4.0	1.0	4.0		4.0	4.0		4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97		1.00	0.97		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3502	3610	1599	3502	3574	1599	3467		1615	3502		1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3502	3610	1599	3502	3574	1599	3467		1615	3502		1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	491	846	360	248	1211	372	592	0	237	241	0	618
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	491	846	360	248	1211	372	592	0	237	241	0	618
Heavy Vehicles (%)	0%	0%	1%	0%	1%	1%	1%	0%	0%	0%	0%	1%
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot		Free	Prot		Free
Protected Phases	5	2		1	6		3			7		
Permitted Phases			Free			Free			Free			Free
Actuated Green, G (s)	22.7	72.8	135.0	13.0	62.6	135.0	27.7		135.0	27.2		135.0
Effective Green, g (s)	26.7	75.8	135.0	16.5	65.6	135.0	30.7		135.0	30.7		135.0
Actuated g/C Ratio	0.20	0.56	1.00	0.12	0.49	1.00	0.23		1.00	0.23		1.00
Clearance Time (s)	8.0	7.0		7.5	7.0		7.0			7.5		
Vehicle Extension (s)	3.5	5.0		3.5	5.0		3.5			3.5		
Lane Grp Cap (vph)	692	2026	1599	428	1736	1599	788		1615	796		1599
v/s Ratio Prot	c0.14	0.23		0.07	c0.34		c0.17			0.07		
v/s Ratio Perm			0.23			0.23			0.15			0.39
v/c Ratio	0.71	0.42	0.23	0.58	0.70	0.23	0.75		0.15	0.30		0.39
Uniform Delay, d1	50.5	17.0	0.0	56.0	27.0	0.0	48.6		0.0	43.3		0.0
Progression Factor	1.08	0.75	1.00	0.98	0.64	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	3.0	0.6	0.3	1.7	2.0	0.3	4.2		0.2	0.3		0.7
Delay (s)	57.8	13.2	0.3	56.4	19.2	0.3	52.8		0.2	43.5		0.7
Level of Service	E	B	A	E	B	A	D		A	D		A
Approach Delay (s)		23.3			20.4			37.7			12.7	
Approach LOS		C			C			D			B	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	246	878	173	8	1090	74	260	25	14	91	47	445
Future Volume (vph)	246	878	173	8	1090	74	260	25	14	91	47	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91		0.95	0.95			1.00	0.88
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96			0.97	1.00
Satd. Flow (prot)	3502	3574	1568	1805	5090		1715	1716			1840	2842
Flt Permitted	0.95	1.00	1.00	0.18	1.00		0.95	0.96			0.97	1.00
Satd. Flow (perm)	3502	3574	1568	348	5090		1715	1716			1840	2842
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	265	944	186	9	1172	80	280	27	15	98	51	478
RTOR Reduction (vph)	0	0	87	0	6	0	0	3	0	0	0	0
Lane Group Flow (vph)	265	944	99	9	1246	0	162	157	0	0	149	478
Heavy Vehicles (%)	0%	1%	3%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		4	4		3	3	3 5
Permitted Phases			2	6								
Actuated Green, G (s)	23.3	67.1	67.1	47.7	46.3		17.3	17.3			16.1	39.4
Effective Green, g (s)	26.8	71.7	71.7	56.9	50.9		22.0	22.0			19.3	45.8
Actuated g/C Ratio	0.20	0.53	0.53	0.42	0.38		0.16	0.16			0.14	0.34
Clearance Time (s)	7.5	8.6	8.6	8.6	8.6		8.7	8.7			7.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	695	1898	832	211	1919		279	279			263	964
v/s Ratio Prot	0.08	c0.26		0.00	c0.24		c0.09	0.09			c0.08	c0.17
v/s Ratio Perm			0.06	0.02								
v/c Ratio	0.38	0.50	0.12	0.04	0.65		0.58	0.56			0.57	0.50
Uniform Delay, d1	46.9	20.2	15.8	36.3	34.7		52.2	52.1			53.9	35.4
Progression Factor	0.89	0.63	0.47	0.44	0.56		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.1	0.9	0.3	0.0	1.5		3.1	2.6			2.8	0.4
Delay (s)	41.9	13.5	7.7	16.1	21.1		55.3	54.7			56.7	35.8
Level of Service	D	B	A	B	C		E	D			E	D
Approach Delay (s)		18.2			21.0			55.0			40.8	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	836	58	71	1004	98	69	17	70	34	23	99
Future Volume (vph)	89	836	58	71	1004	98	69	17	70	34	23	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	3574	1615	1805	3574	1615	1715	1746	1615	1805	1805	1519
Flt Permitted	0.95	1.00	1.00	0.23	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	3574	1615	430	3574	1615	1715	1746	1615	1805	1805	1519
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	96	899	62	76	1080	105	74	18	75	37	25	106
RTOR Reduction (vph)	0	0	25	0	0	44	0	0	67	0	0	96
Lane Group Flow (vph)	96	899	37	76	1080	61	37	55	8	37	25	10
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Prot
Protected Phases	5	2		1	6		4	4		3	3	3
Permitted Phases			2	6		6			4			
Actuated Green, G (s)	9.8	76.4	76.4	74.2	74.2	74.2	10.6	10.6	10.6	8.5	8.5	8.5
Effective Green, g (s)	13.6	81.0	81.0	78.8	78.8	78.8	14.3	14.3	14.3	12.3	12.3	12.3
Actuated g/C Ratio	0.10	0.60	0.60	0.58	0.58	0.58	0.11	0.11	0.11	0.09	0.09	0.09
Clearance Time (s)	7.8	8.6	8.6	8.6	8.6	8.6	7.7	7.7	7.7	7.8	7.8	7.8
Vehicle Extension (s)	2.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	352	2144	969	367	2086	942	181	184	171	164	164	138
v/s Ratio Prot	0.03	c0.25		0.02	c0.30		0.02	c0.03		c0.02	0.01	0.01
v/s Ratio Perm			0.02	0.10		0.04			0.00			
v/c Ratio	0.27	0.42	0.04	0.21	0.52	0.07	0.20	0.30	0.05	0.23	0.15	0.07
Uniform Delay, d1	56.1	14.4	11.1	13.8	16.8	12.2	55.2	55.7	54.2	56.9	56.5	56.1
Progression Factor	0.70	0.40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.5	0.1	0.3	0.9	0.1	0.6	0.9	0.1	0.7	0.4	0.2
Delay (s)	39.5	6.3	11.1	14.1	17.7	12.3	55.7	56.6	54.3	57.6	57.0	56.3
Level of Service	D	A	B	B	B	B	E	E	D	E	E	E
Approach Delay (s)		9.6			17.0			55.4			56.7	
Approach LOS		A			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	1082	933	130	262	11
Future Volume (vph)	24	1082	933	130	262	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95	0.91		0.97	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3367	3505	4815		3433	1615
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3367	3505	4815		3433	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	1176	1014	141	285	12
RTOR Reduction (vph)	0	0	10	0	0	10
Lane Group Flow (vph)	26	1176	1145	0	285	2
Heavy Vehicles (%)	4%	3%	6%	4%	2%	0%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	3.7	105.5	93.8		16.5	16.5
Effective Green, g (s)	7.7	107.5	95.8		19.5	19.5
Actuated g/C Ratio	0.06	0.80	0.71		0.14	0.14
Clearance Time (s)	8.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	2.0	5.0	5.0		3.0	3.0
Lane Grp Cap (vph)	192	2791	3416		495	233
v/s Ratio Prot	0.01	c0.34	0.24		c0.08	
v/s Ratio Perm						0.00
v/c Ratio	0.14	0.42	0.34		0.58	0.01
Uniform Delay, d1	60.5	4.2	7.5		53.9	49.5
Progression Factor	1.00	1.00	0.64		1.00	1.00
Incremental Delay, d2	0.1	0.5	0.3		1.6	0.0
Delay (s)	60.6	4.7	5.0		55.5	49.5
Level of Service	E	A	A		E	D
Approach Delay (s)		5.9	5.0		55.3	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	308	644	392	136	424	154	250	0	245	238	0	389
Future Volume (vph)	308	644	392	136	424	154	250	0	245	238	0	389
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97		1.00	0.97		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3433	3539	1553	3367	3471	1482	3367		1568	3433		1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3433	3539	1553	3367	3471	1482	3367		1568	3433		1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	318	664	404	140	437	159	258	0	253	245	0	401
RTOR Reduction (vph)	0	0	162	0	0	63	0	0	0	0	0	0
Lane Group Flow (vph)	318	664	242	140	437	96	258	0	253	245	0	401
Heavy Vehicles (%)	2%	2%	4%	4%	4%	9%	4%	0%	3%	2%	0%	5%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot		Free	Prot		Free
Protected Phases	5	2		1	6		3			7		
Permitted Phases			2			6			Free			Free
Actuated Green, G (s)	18.3	77.7	77.7	19.7	78.6	78.6	16.1		135.0	15.6		135.0
Effective Green, g (s)	22.3	80.7	80.7	23.2	81.6	81.6	19.1		135.0	19.1		135.0
Actuated g/C Ratio	0.17	0.60	0.60	0.17	0.60	0.60	0.14		1.00	0.14		1.00
Clearance Time (s)	8.0	7.0	7.0	7.5	7.0	7.0	7.0			7.5		
Vehicle Extension (s)	3.5	5.0	5.0	3.5	5.0	5.0	3.5			3.5		
Lane Grp Cap (vph)	567	2115	928	578	2098	895	476		1568	485		1538
v/s Ratio Prot	c0.09	c0.19		0.04	0.13		c0.08			0.07		
v/s Ratio Perm			0.16			0.06			0.16			c0.26
v/c Ratio	0.56	0.31	0.26	0.24	0.21	0.11	0.54		0.16	0.51		0.26
Uniform Delay, d1	51.8	13.4	12.9	48.3	12.1	11.3	53.9		0.0	53.6		0.0
Progression Factor	0.84	0.99	1.53	0.95	0.68	0.81	1.00		1.00	1.00		1.00
Incremental Delay, d2	1.3	0.4	0.6	0.3	0.2	0.2	1.4		0.2	1.0		0.4
Delay (s)	44.9	13.7	20.4	46.3	8.4	9.3	55.3		0.2	54.6		0.4
Level of Service	D	B	C	D	A	A	E		A	D		A
Approach Delay (s)		22.8			15.8			28.0			20.9	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	754	217	6	459	23	104	11	9	18	8	151
Future Volume (vph)	156	754	217	6	459	23	104	11	9	18	8	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91		0.95	0.95			1.00	0.88
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.97	1.00
Satd. Flow (prot)	3433	3574	1538	1543	5042		1588	1596			1749	2760
Flt Permitted	0.95	1.00	1.00	0.30	1.00		0.95	0.97			0.97	1.00
Satd. Flow (perm)	3433	3574	1538	488	5042		1588	1596			1749	2760
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	162	785	226	6	478	24	108	11	9	19	8	157
RTOR Reduction (vph)	0	0	82	0	3	0	0	4	0	0	0	0
Lane Group Flow (vph)	163	785	144	6	499	0	63	61	0	0	27	157
Heavy Vehicles (%)	2%	1%	5%	17%	2%	5%	8%	9%	0%	7%	0%	3%
Turn Type	Prot	NA	Perm	pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		4	4		3	3	3 5
Permitted Phases			2	6								
Actuated Green, G (s)	19.1	81.7	81.7	65.7	64.7		11.2	11.2			8.0	27.1
Effective Green, g (s)	22.6	86.3	86.3	74.9	69.3		15.9	15.9			11.2	33.5
Actuated g/C Ratio	0.17	0.64	0.64	0.55	0.51		0.12	0.12			0.08	0.25
Clearance Time (s)	7.5	8.6	8.6	8.6	8.6		8.7	8.7			7.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	574	2284	983	314	2588		187	187			145	684
v/s Ratio Prot	c0.05	c0.22		0.00	0.10		c0.04	0.04			0.02	c0.06
v/s Ratio Perm			0.09	0.01								
v/c Ratio	0.28	0.34	0.15	0.02	0.19		0.34	0.32			0.19	0.23
Uniform Delay, d1	49.1	11.3	9.7	18.7	17.7		54.7	54.6			57.7	40.5
Progression Factor	1.07	0.62	1.30	0.41	0.37		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.1	0.4	0.3	0.0	0.2		1.1	1.0			0.6	0.2
Delay (s)	52.7	7.4	12.9	7.7	6.7		55.8	55.6			58.3	40.6
Level of Service	D	A	B	A	A		E	E			E	D
Approach Delay (s)		14.8			6.7			55.7			43.2	
Approach LOS		B			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	635	91	44	374	20	65	10	48	12	8	49
Future Volume (vph)	55	635	91	44	374	20	65	10	48	12	8	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	3539	1599	1805	3471	1524	1715	1738	1583	1805	1805	1534
Flt Permitted	0.95	1.00	1.00	0.32	1.00	1.00	0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	3539	1599	604	3471	1524	1715	1738	1583	1805	1805	1534
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	690	99	48	407	22	71	11	52	13	9	53
RTOR Reduction (vph)	0	0	36	0	0	9	0	0	47	0	0	49
Lane Group Flow (vph)	60	690	63	48	407	13	35	47	5	13	9	4
Heavy Vehicles (%)	4%	2%	1%	0%	4%	6%	0%	0%	2%	0%	0%	0%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Prot
Protected Phases	5	2		1	6		4	4		3	3	3
Permitted Phases			2	6		6			4			
Actuated Green, G (s)	14.7	81.4	81.4	73.7	73.7	73.7	8.8	8.8	8.8	5.9	5.9	5.9
Effective Green, g (s)	18.5	86.0	86.0	78.3	78.3	78.3	12.5	12.5	12.5	9.7	9.7	9.7
Actuated g/C Ratio	0.14	0.64	0.64	0.58	0.58	0.58	0.09	0.09	0.09	0.07	0.07	0.07
Clearance Time (s)	7.8	8.6	8.6	8.6	8.6	8.6	7.7	7.7	7.7	7.8	7.8	7.8
Vehicle Extension (s)	2.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	461	2254	1018	446	2013	883	158	160	146	129	129	110
v/s Ratio Prot	0.02	c0.19		0.01	c0.12		0.02	c0.03		c0.01	0.00	0.00
v/s Ratio Perm			0.04	0.05		0.01			0.00			
v/c Ratio	0.13	0.31	0.06	0.11	0.20	0.01	0.22	0.29	0.03	0.10	0.07	0.03
Uniform Delay, d1	51.2	11.0	9.3	12.8	13.5	12.0	56.7	57.1	55.7	58.6	58.4	58.3
Progression Factor	0.84	0.27	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.3	0.1	0.1	0.2	0.0	0.7	1.0	0.1	0.3	0.2	0.1
Delay (s)	43.0	3.3	9.4	12.9	13.7	12.0	57.5	58.2	55.8	58.9	58.7	58.4
Level of Service	D	A	A	B	B	B	E	E	E	E	E	E
Approach Delay (s)		6.8			13.6			57.1			58.5	
Approach LOS		A			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	59	1267	2018	412	444	67
Future Volume (vph)	59	1267	2018	412	444	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95	0.91		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3502	3574	5013		3502	1615
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3502	3574	5013		3502	1615
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	61	1306	2080	425	458	69
RTOR Reduction (vph)	0	0	22	0	0	56
Lane Group Flow (vph)	61	1306	2483	0	458	13
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	4.0	100.2	88.2		21.8	21.8
Effective Green, g (s)	8.0	102.2	90.2		24.8	24.8
Actuated g/C Ratio	0.06	0.76	0.67		0.18	0.18
Clearance Time (s)	8.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	2.0	5.0	5.0		3.0	3.0
Lane Grp Cap (vph)	207	2705	3349		643	296
v/s Ratio Prot	0.02	c0.37	c0.50		c0.13	
v/s Ratio Perm						0.01
v/c Ratio	0.29	0.48	0.74		0.71	0.04
Uniform Delay, d1	60.8	6.3	14.7		51.7	45.3
Progression Factor	1.00	1.00	0.49		1.00	1.00
Incremental Delay, d2	0.3	0.6	1.2		3.7	0.1
Delay (s)	61.1	6.9	8.4		55.5	45.4
Level of Service	E	A	A		E	D
Approach Delay (s)		9.3	8.4		54.2	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	491	860	360	254	1220	378	592	0	248	250	0	618
Future Volume (vph)	491	860	360	254	1220	378	592	0	248	250	0	618
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97		1.00	0.97		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3502	3610	1599	3502	3574	1599	3467		1615	3502		1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3502	3610	1599	3502	3574	1599	3467		1615	3502		1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	501	878	367	259	1245	386	604	0	253	255	0	631
RTOR Reduction (vph)	0	0	162	0	0	168	0	0	0	0	0	0
Lane Group Flow (vph)	501	878	205	259	1245	218	604	0	253	255	0	631
Heavy Vehicles (%)	0%	0%	1%	0%	1%	1%	1%	0%	0%	0%	0%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot		Free	Prot		Free
Protected Phases	5	2		1	6		3			7		
Permitted Phases			2			6			Free			Free
Actuated Green, G (s)	22.5	72.4	72.4	13.7	63.1	63.1	27.4		135.0	26.9		135.0
Effective Green, g (s)	26.5	75.4	75.4	17.2	66.1	66.1	30.4		135.0	30.4		135.0
Actuated g/C Ratio	0.20	0.56	0.56	0.13	0.49	0.49	0.23		1.00	0.23		1.00
Clearance Time (s)	8.0	7.0	7.0	7.5	7.0	7.0	7.0			7.5		
Vehicle Extension (s)	3.5	5.0	5.0	3.5	5.0	5.0	3.5			3.5		
Lane Grp Cap (vph)	687	2016	893	446	1749	782	780		1615	788		1599
v/s Ratio Prot	c0.14	0.24		0.07	c0.35		c0.17			0.07		
v/s Ratio Perm			0.13			0.14			0.16			0.39
v/c Ratio	0.73	0.44	0.23	0.58	0.71	0.28	0.77		0.16	0.32		0.39
Uniform Delay, d1	50.9	17.4	15.1	55.5	27.0	20.4	49.1		0.0	43.7		0.0
Progression Factor	1.09	0.75	0.06	0.98	0.65	0.48	1.00		1.00	1.00		1.00
Incremental Delay, d2	3.5	0.6	0.5	1.7	2.1	0.7	5.0		0.2	0.3		0.7
Delay (s)	58.9	13.6	1.5	56.1	19.6	10.5	54.0		0.2	44.0		0.7
Level of Service	E	B	A	E	B	B	D		A	D		A
Approach Delay (s)		24.0			22.7			38.2			13.2	
Approach LOS		C			C			D			B	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	917	176	8	1125	75	265	26	14	93	48	462
Future Volume (vph)	265	917	176	8	1125	75	265	26	14	93	48	462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91		0.95	0.95			1.00	0.88
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96			0.97	1.00
Satd. Flow (prot)	3502	3574	1568	1805	5090		1715	1717			1839	2842
Flt Permitted	0.95	1.00	1.00	0.17	1.00		0.95	0.96			0.97	1.00
Satd. Flow (perm)	3502	3574	1568	316	5090		1715	1717			1839	2842
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	285	986	189	9	1210	81	285	28	15	100	52	497
RTOR Reduction (vph)	0	0	88	0	6	0	0	3	0	0	0	0
Lane Group Flow (vph)	285	986	101	9	1285	0	165	160	0	0	152	497
Heavy Vehicles (%)	0%	1%	3%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		4	4		3	3	3 5
Permitted Phases			2	6								
Actuated Green, G (s)	23.7	67.3	67.3	47.1	45.9		17.2	17.2			16.2	39.9
Effective Green, g (s)	27.2	71.9	71.9	56.3	50.5		21.9	21.9			19.4	46.3
Actuated g/C Ratio	0.20	0.53	0.53	0.42	0.37		0.16	0.16			0.14	0.34
Clearance Time (s)	7.5	8.6	8.6	8.6	8.6		8.7	8.7			7.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	705	1903	835	195	1904		278	278			264	974
v/s Ratio Prot	0.08	c0.28		0.00	c0.25		c0.10	0.09			c0.08	c0.17
v/s Ratio Perm			0.06	0.02								
v/c Ratio	0.40	0.52	0.12	0.05	0.68		0.59	0.58			0.58	0.51
Uniform Delay, d1	46.9	20.4	15.8	37.8	35.4		52.4	52.3			54.0	35.3
Progression Factor	0.88	0.63	0.49	0.42	0.55		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.1	1.0	0.3	0.0	1.7		3.4	2.9			3.0	0.5
Delay (s)	41.6	13.9	7.9	15.9	21.1		55.8	55.2			57.0	35.8
Level of Service	D	B	A	B	C		E	E			E	D
Approach Delay (s)		18.5			21.1			55.5			40.7	
Approach LOS		B			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	853	59	72	1024	112	70	17	71	41	23	114
Future Volume (vph)	112	853	59	72	1024	112	70	17	71	41	23	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	3574	1615	1805	3574	1615	1715	1746	1615	1805	1805	1519
Flt Permitted	0.95	1.00	1.00	0.22	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	3574	1615	412	3574	1615	1715	1746	1615	1805	1805	1519
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	120	917	63	77	1101	120	75	18	76	44	25	123
RTOR Reduction (vph)	0	0	25	0	0	51	0	0	68	0	0	111
Lane Group Flow (vph)	120	917	38	77	1101	69	37	56	8	44	25	12
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Prot
Protected Phases	5	2		1	6		4	4		3	3	3
Permitted Phases			2	6		6			4			
Actuated Green, G (s)	10.7	75.8	75.8	72.8	72.8	72.8	10.6	10.6	10.6	9.0	9.0	9.0
Effective Green, g (s)	14.5	80.4	80.4	77.4	77.4	77.4	14.3	14.3	14.3	12.8	12.8	12.8
Actuated g/C Ratio	0.11	0.60	0.60	0.57	0.57	0.57	0.11	0.11	0.11	0.09	0.09	0.09
Clearance Time (s)	7.8	8.6	8.6	8.6	8.6	8.6	7.7	7.7	7.7	7.8	7.8	7.8
Vehicle Extension (s)	2.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	376	2128	961	354	2049	925	181	184	171	171	171	144
v/s Ratio Prot	0.03	c0.26		0.02	c0.31		0.02	c0.03		c0.02	0.01	0.01
v/s Ratio Perm			0.02	0.11		0.04			0.00			
v/c Ratio	0.32	0.43	0.04	0.22	0.54	0.07	0.20	0.30	0.05	0.26	0.15	0.08
Uniform Delay, d1	55.7	14.9	11.3	14.5	17.8	12.8	55.2	55.8	54.2	56.7	56.1	55.7
Progression Factor	0.71	0.38	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.6	0.1	0.3	1.0	0.2	0.6	0.9	0.1	0.8	0.4	0.2
Delay (s)	39.8	6.3	11.4	14.9	18.8	13.0	55.7	56.7	54.3	57.5	56.5	56.0
Level of Service	D	A	B	B	B	B	E	E	D	E	E	E
Approach Delay (s)		10.2			18.0			55.4			56.4	
Approach LOS		B			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	1096	944	130	262	11
Future Volume (vph)	24	1096	944	130	262	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95	0.91		0.97	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3367	3505	4816		3433	1615
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3367	3505	4816		3433	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	1191	1026	141	285	12
RTOR Reduction (vph)	0	0	10	0	0	10
Lane Group Flow (vph)	26	1191	1157	0	285	2
Heavy Vehicles (%)	4%	3%	6%	4%	2%	0%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	3.7	105.5	93.8		16.5	16.5
Effective Green, g (s)	7.7	107.5	95.8		19.5	19.5
Actuated g/C Ratio	0.06	0.80	0.71		0.14	0.14
Clearance Time (s)	8.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	2.0	5.0	5.0		3.0	3.0
Lane Grp Cap (vph)	192	2791	3417		495	233
v/s Ratio Prot	0.01	c0.34	0.24		c0.08	
v/s Ratio Perm						0.00
v/c Ratio	0.14	0.43	0.34		0.58	0.01
Uniform Delay, d1	60.5	4.2	7.5		53.9	49.5
Progression Factor	1.00	1.00	0.65		1.00	1.00
Incremental Delay, d2	0.1	0.5	0.3		1.6	0.0
Delay (s)	60.6	4.7	5.1		55.5	49.5
Level of Service	E	A	A		E	D
Approach Delay (s)		5.9	5.1		55.3	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	308	658	392	147	435	164	250	0	254	247	0	389
Future Volume (vph)	308	658	392	147	435	164	250	0	254	247	0	389
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97		1.00	0.97		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3433	3539	1553	3367	3471	1482	3367		1568	3433		1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3433	3539	1553	3367	3471	1482	3367		1568	3433		1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	318	678	404	152	448	169	258	0	262	255	0	401
RTOR Reduction (vph)	0	0	165	0	0	67	0	0	0	0	0	0
Lane Group Flow (vph)	318	678	239	152	448	102	258	0	262	255	0	401
Heavy Vehicles (%)	2%	2%	4%	4%	4%	9%	4%	0%	3%	2%	0%	5%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot		Free	Prot		Free
Protected Phases	5	2		1	6		3			7		
Permitted Phases			2			6			Free			Free
Actuated Green, G (s)	18.3	76.9	76.9	20.3	78.4	78.4	16.3		135.0	15.8		135.0
Effective Green, g (s)	22.3	79.9	79.9	23.8	81.4	81.4	19.3		135.0	19.3		135.0
Actuated g/C Ratio	0.17	0.59	0.59	0.18	0.60	0.60	0.14		1.00	0.14		1.00
Clearance Time (s)	8.0	7.0	7.0	7.5	7.0	7.0	7.0			7.5		
Vehicle Extension (s)	3.5	5.0	5.0	3.5	5.0	5.0	3.5			3.5		
Lane Grp Cap (vph)	567	2094	919	593	2092	893	481		1568	490		1538
v/s Ratio Prot	c0.09	c0.19		0.05	0.13		c0.08			0.07		
v/s Ratio Perm			0.15			0.07			0.17			c0.26
v/c Ratio	0.56	0.32	0.26	0.26	0.21	0.11	0.54		0.17	0.52		0.26
Uniform Delay, d1	51.8	13.9	13.3	48.0	12.2	11.4	53.7		0.0	53.6		0.0
Progression Factor	0.84	0.99	1.40	0.90	0.52	0.80	1.00		1.00	1.00		1.00
Incremental Delay, d2	1.3	0.4	0.6	0.3	0.2	0.3	1.3		0.2	1.1		0.4
Delay (s)	44.9	14.1	19.2	43.2	6.6	9.4	55.0		0.2	54.7		0.4
Level of Service	D	B	B	D	A	A	D		A	D		A
Approach Delay (s)		22.6			14.5			27.4			21.5	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	754	249	19	459	23	136	11	21	18	8	151
Future Volume (vph)	156	754	249	19	459	23	136	11	21	18	8	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91		0.95	0.95			1.00	0.88
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.97	1.00
Satd. Flow (prot)	3433	3574	1538	1543	5042		1588	1588			1749	2760
Flt Permitted	0.95	1.00	1.00	0.30	1.00		0.95	0.97			0.97	1.00
Satd. Flow (perm)	3433	3574	1538	480	5042		1588	1588			1749	2760
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	162	785	259	20	478	24	142	11	22	19	8	157
RTOR Reduction (vph)	0	0	99	0	3	0	0	10	0	0	0	0
Lane Group Flow (vph)	163	785	160	20	499	0	82	83	0	0	27	157
Heavy Vehicles (%)	2%	1%	5%	17%	2%	5%	8%	9%	0%	7%	0%	3%
Turn Type	Prot	NA	Perm	pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		4	4		3	3	3 5
Permitted Phases			2	6								
Actuated Green, G (s)	18.9	78.6	78.6	66.8	63.8		12.4	12.4			7.9	34.3
Effective Green, g (s)	22.4	83.2	83.2	76.0	68.4		17.1	17.1			11.1	33.2
Actuated g/C Ratio	0.17	0.62	0.62	0.56	0.51		0.13	0.13			0.08	0.25
Clearance Time (s)	7.5	8.6	8.6	8.6	8.6		8.7	8.7			7.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	569	2202	947	330	2554		201	201			143	678
v/s Ratio Prot	c0.05	c0.22		0.00	0.10		0.05	c0.05			0.02	c0.06
v/s Ratio Perm			0.10	0.03								
v/c Ratio	0.29	0.36	0.17	0.06	0.20		0.41	0.41			0.19	0.23
Uniform Delay, d1	49.3	12.7	11.1	19.0	18.2		54.3	54.3			57.8	40.7
Progression Factor	1.08	0.62	1.32	0.38	0.40		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.1	0.4	0.4	0.0	0.2		1.4	1.4			0.6	0.2
Delay (s)	53.5	8.3	15.0	7.4	7.4		55.6	55.7			58.4	40.9
Level of Service	D	A	B	A	A		E	E			E	D
Approach Delay (s)		15.8			7.4			55.7			43.4	
Approach LOS		B			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	647	91	44	387	20	65	10	48	22	8	49
Future Volume (vph)	55	647	91	44	387	20	65	10	48	22	8	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	3539	1599	1805	3471	1524	1715	1738	1583	1805	1805	1534
Flt Permitted	0.95	1.00	1.00	0.31	1.00	1.00	0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	3539	1599	591	3471	1524	1715	1738	1583	1805	1805	1534
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	703	99	48	421	22	71	11	52	24	9	53
RTOR Reduction (vph)	0	0	36	0	0	9	0	0	47	0	0	49
Lane Group Flow (vph)	60	703	63	48	421	13	35	47	5	24	9	4
Heavy Vehicles (%)	4%	2%	1%	0%	4%	6%	0%	0%	2%	0%	0%	0%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Prot
Protected Phases	5	2		1	6		4	4		3	3	3
Permitted Phases			2	6		6			4			
Actuated Green, G (s)	14.3	80.9	80.9	73.6	73.6	73.6	8.8	8.8	8.8	6.4	6.4	6.4
Effective Green, g (s)	18.1	85.5	85.5	78.2	78.2	78.2	12.5	12.5	12.5	10.2	10.2	10.2
Actuated g/C Ratio	0.13	0.63	0.63	0.58	0.58	0.58	0.09	0.09	0.09	0.08	0.08	0.08
Clearance Time (s)	7.8	8.6	8.6	8.6	8.6	8.6	7.7	7.7	7.7	7.8	7.8	7.8
Vehicle Extension (s)	2.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	451	2241	1012	439	2010	882	158	160	146	136	136	115
v/s Ratio Prot	0.02	c0.20		0.01	c0.12		0.02	c0.03		c0.01	0.00	0.00
v/s Ratio Perm			0.04	0.05		0.01			0.00			
v/c Ratio	0.13	0.31	0.06	0.11	0.21	0.01	0.22	0.29	0.03	0.18	0.07	0.03
Uniform Delay, d1	51.5	11.3	9.4	12.9	13.6	12.0	56.7	57.1	55.7	58.5	58.0	57.8
Progression Factor	0.81	0.20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.4	0.1	0.1	0.2	0.0	0.7	1.0	0.1	0.6	0.2	0.1
Delay (s)	41.7	2.7	9.6	13.0	13.8	12.1	57.5	58.2	55.8	59.1	58.2	58.0
Level of Service	D	A	A	B	B	B	E	E	E	E	E	E
Approach Delay (s)		6.2			13.7			57.1			58.3	
Approach LOS		A			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	59	1281	2029	412	444	67
Future Volume (vph)	59	1281	2029	412	444	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95	0.91		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3502	3574	5014		3502	1615
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3502	3574	5014		3502	1615
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	61	1321	2092	425	458	69
RTOR Reduction (vph)	0	0	21	0	0	56
Lane Group Flow (vph)	61	1321	2496	0	458	13
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	4.0	100.2	88.2		21.8	21.8
Effective Green, g (s)	8.0	102.2	90.2		24.8	24.8
Actuated g/C Ratio	0.06	0.76	0.67		0.18	0.18
Clearance Time (s)	8.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	2.0	5.0	5.0		3.0	3.0
Lane Grp Cap (vph)	207	2705	3350		643	296
v/s Ratio Prot	0.02	c0.37	c0.50		c0.13	
v/s Ratio Perm						0.01
v/c Ratio	0.29	0.49	0.75		0.71	0.04
Uniform Delay, d1	60.8	6.3	14.8		51.7	45.3
Progression Factor	1.00	1.00	0.45		1.00	1.00
Incremental Delay, d2	0.3	0.6	1.2		3.7	0.1
Delay (s)	61.1	7.0	7.9		55.5	45.4
Level of Service	E	A	A		E	D
Approach Delay (s)		9.3	7.9		54.2	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	491	874	360	265	1231	388	592	0	257	259	0	618
Future Volume (vph)	491	874	360	265	1231	388	592	0	257	259	0	618
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97		1.00	0.97		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3502	3610	1599	3502	3574	1599	3467		1615	3502		1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3502	3610	1599	3502	3574	1599	3467		1615	3502		1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	501	892	367	270	1256	396	604	0	262	264	0	631
RTOR Reduction (vph)	0	0	161	0	0	170	0	0	0	0	0	0
Lane Group Flow (vph)	501	892	206	270	1256	226	604	0	262	264	0	631
Heavy Vehicles (%)	0%	0%	1%	0%	1%	1%	1%	0%	0%	0%	0%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot		Free	Prot		Free
Protected Phases	5	2		1	6		3			7		
Permitted Phases			2			6			Free			Free
Actuated Green, G (s)	22.3	72.6	72.6	13.5	63.3	63.3	27.4		135.0	26.9		135.0
Effective Green, g (s)	26.3	75.6	75.6	17.0	66.3	66.3	30.4		135.0	30.4		135.0
Actuated g/C Ratio	0.19	0.56	0.56	0.13	0.49	0.49	0.23		1.00	0.23		1.00
Clearance Time (s)	8.0	7.0	7.0	7.5	7.0	7.0	7.0			7.5		
Vehicle Extension (s)	3.5	5.0	5.0	3.5	5.0	5.0	3.5			3.5		
Lane Grp Cap (vph)	682	2021	895	440	1755	785	780		1615	788		1599
v/s Ratio Prot	c0.14	0.25		0.08	c0.35		c0.17			0.08		
v/s Ratio Perm			0.13			0.14			0.16			0.39
v/c Ratio	0.73	0.44	0.23	0.61	0.72	0.29	0.77		0.16	0.34		0.39
Uniform Delay, d1	51.1	17.4	15.0	55.9	27.0	20.4	49.1		0.0	43.8		0.0
Progression Factor	1.12	0.74	0.03	0.98	0.65	0.50	1.00		1.00	1.00		1.00
Incremental Delay, d2	3.7	0.6	0.5	2.2	2.1	0.8	5.0		0.2	0.3		0.7
Delay (s)	60.9	13.4	0.9	56.9	19.6	10.9	54.0		0.2	44.1		0.7
Level of Service	E	B	A	E	B	B	D		A	D		A
Approach Delay (s)		24.3			23.1			37.8			13.5	
Approach LOS		C			C			D			B	

Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	917	208	21	1125	75	297	26	26	93	48	462
Future Volume (vph)	265	917	208	21	1125	75	297	26	26	93	48	462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91		0.95	0.95			1.00	0.88
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97			0.97	1.00
Satd. Flow (prot)	3502	3574	1568	1805	5090		1715	1705			1839	2842
Flt Permitted	0.95	1.00	1.00	0.16	1.00		0.95	0.97			0.97	1.00
Satd. Flow (perm)	3502	3574	1568	303	5090		1715	1705			1839	2842
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	285	986	224	23	1210	81	319	28	28	100	52	497
RTOR Reduction (vph)	0	0	115	0	5	0	0	5	0	0	0	0
Lane Group Flow (vph)	285	986	109	23	1286	0	185	185	0	0	152	497
Heavy Vehicles (%)	0%	1%	3%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		4	4		3	3	3 5
Permitted Phases			2	6								
Actuated Green, G (s)	19.7	61.3	61.3	54.5	48.6		18.8	18.8			15.9	35.6
Effective Green, g (s)	23.2	65.9	65.9	63.7	53.2		23.5	23.5			19.1	42.0
Actuated g/C Ratio	0.17	0.49	0.49	0.47	0.39		0.17	0.17			0.14	0.31
Clearance Time (s)	7.5	8.6	8.6	8.6	8.6		8.7	8.7			7.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	601	1744	765	259	2005		298	296			260	884
v/s Ratio Prot	0.08	c0.28		0.01	c0.25		0.11	c0.11			c0.08	c0.17
v/s Ratio Perm			0.07	0.03								
v/c Ratio	0.47	0.57	0.14	0.09	0.64		0.62	0.63			0.58	0.56
Uniform Delay, d1	50.4	24.4	19.0	35.1	33.2		51.6	51.7			54.2	38.8
Progression Factor	0.90	0.74	0.66	0.56	0.56		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.2	1.3	0.4	0.0	1.4		4.0	4.1			3.3	0.8
Delay (s)	45.7	19.4	13.0	19.5	19.9		55.6	55.7			57.6	39.6
Level of Service	D	B	B	B	B		E	E			E	D
Approach Delay (s)		23.4			19.8			55.7			43.8	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	865	59	72	1037	112	70	17	71	41	23	114
Future Volume (vph)	112	865	59	72	1037	112	70	17	71	41	23	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	3574	1615	1805	3574	1615	1715	1746	1615	1805	1805	1519
Flt Permitted	0.95	1.00	1.00	0.21	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	3574	1615	404	3574	1615	1715	1746	1615	1805	1805	1519
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	120	930	63	77	1115	120	75	18	76	44	25	123
RTOR Reduction (vph)	0	0	25	0	0	51	0	0	68	0	0	111
Lane Group Flow (vph)	120	930	38	77	1115	69	37	56	8	44	25	12
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Prot
Protected Phases	5	2		1	6		4	4		3	3	3
Permitted Phases			2	6		6			4			
Actuated Green, G (s)	10.7	75.9	75.9	72.8	72.8	72.8	10.6	10.6	10.6	9.0	9.0	9.0
Effective Green, g (s)	14.5	80.5	80.5	77.4	77.4	77.4	14.3	14.3	14.3	12.8	12.8	12.8
Actuated g/C Ratio	0.11	0.60	0.60	0.57	0.57	0.57	0.11	0.11	0.11	0.09	0.09	0.09
Clearance Time (s)	7.8	8.6	8.6	8.6	8.6	8.6	7.7	7.7	7.7	7.8	7.8	7.8
Vehicle Extension (s)	2.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	376	2131	963	349	2049	925	181	184	171	171	171	144
v/s Ratio Prot	0.03	c0.26		0.02	c0.31		0.02	c0.03		c0.02	0.01	0.01
v/s Ratio Perm			0.02	0.11		0.04			0.00			
v/c Ratio	0.32	0.44	0.04	0.22	0.54	0.07	0.20	0.30	0.05	0.26	0.15	0.08
Uniform Delay, d1	55.7	14.9	11.3	14.6	17.9	12.8	55.2	55.8	54.2	56.7	56.1	55.7
Progression Factor	0.60	0.24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.6	0.1	0.3	1.0	0.2	0.6	0.9	0.1	0.8	0.4	0.2
Delay (s)	33.6	4.1	11.3	14.9	18.9	13.0	55.7	56.7	54.3	57.5	56.5	56.0
Level of Service	C	A	B	B	B	B	E	E	D	E	E	E
Approach Delay (s)		7.7			18.1			55.4			56.4	
Approach LOS		A			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	1103	954	130	262	11
Future Volume (vph)	24	1103	954	130	262	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95	0.91		0.97	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3367	3505	4816		3433	1615
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3367	3505	4816		3433	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	1199	1037	141	285	12
RTOR Reduction (vph)	0	0	10	0	0	10
Lane Group Flow (vph)	26	1199	1168	0	285	2
Heavy Vehicles (%)	4%	3%	6%	4%	2%	0%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	3.7	105.5	93.8		16.5	16.5
Effective Green, g (s)	7.7	107.5	95.8		19.5	19.5
Actuated g/C Ratio	0.06	0.80	0.71		0.14	0.14
Clearance Time (s)	8.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	2.0	5.0	5.0		3.0	3.0
Lane Grp Cap (vph)	192	2791	3417		495	233
v/s Ratio Prot	0.01	c0.34	0.24		c0.08	
v/s Ratio Perm						0.00
v/c Ratio	0.14	0.43	0.34		0.58	0.01
Uniform Delay, d1	60.5	4.3	7.5		53.9	49.5
Progression Factor	1.00	1.00	0.54		1.00	1.00
Incremental Delay, d2	0.1	0.5	0.3		1.6	0.0
Delay (s)	60.6	4.7	4.3		55.5	49.5
Level of Service	E	A	A		E	D
Approach Delay (s)		5.9	4.3		55.3	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	308	665	392	153	445	171	250	0	262	255	0	389
Future Volume (vph)	308	665	392	153	445	171	250	0	262	255	0	389
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97		1.00	0.97		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3433	3539	1553	3367	3471	1482	3367		1568	3433		1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3433	3539	1553	3367	3471	1482	3367		1568	3433		1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	318	686	404	158	459	176	258	0	270	263	0	401
RTOR Reduction (vph)	0	0	141	0	0	70	0	0	0	0	0	0
Lane Group Flow (vph)	318	686	263	158	459	106	258	0	270	263	0	401
Heavy Vehicles (%)	2%	2%	4%	4%	4%	9%	4%	0%	3%	2%	0%	5%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot		Free	Prot		Free
Protected Phases	5	2		1	6		3			7		
Permitted Phases			2			6			Free			Free
Actuated Green, G (s)	18.3	84.8	84.8	12.1	78.1	78.1	16.6		135.0	16.1		135.0
Effective Green, g (s)	22.3	87.8	87.8	15.6	81.1	81.1	19.6		135.0	19.6		135.0
Actuated g/C Ratio	0.17	0.65	0.65	0.12	0.60	0.60	0.15		1.00	0.15		1.00
Clearance Time (s)	8.0	7.0	7.0	7.5	7.0	7.0	7.0			7.5		
Vehicle Extension (s)	3.5	5.0	5.0	3.5	5.0	5.0	3.5			3.5		
Lane Grp Cap (vph)	567	2301	1010	389	2085	890	488		1568	498		1538
v/s Ratio Prot	c0.09	c0.19		0.05	0.13		c0.08			0.08		
v/s Ratio Perm			0.17			0.07			0.17			0.26
v/c Ratio	0.56	0.30	0.26	0.41	0.22	0.12	0.53		0.17	0.53		0.26
Uniform Delay, d1	51.8	10.2	9.9	55.4	12.4	11.6	53.4		0.0	53.4		0.0
Progression Factor	1.08	0.77	0.16	1.10	0.51	0.31	1.00		1.00	1.00		1.00
Incremental Delay, d2	1.3	0.3	0.6	0.8	0.2	0.3	1.2		0.2	1.2		0.4
Delay (s)	57.4	8.2	2.1	61.8	6.6	3.9	54.6		0.2	54.6		0.4
Level of Service	E	A	A	E	A	A	D		A	D		A
Approach Delay (s)		17.6			17.0			26.8			21.9	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	698	340	63	425	21	204	25	87	17	20	140
Future Volume (vph)	144	698	340	63	425	21	204	25	87	17	20	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91		0.97	1.00			1.00	0.88
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	3433	3574	1538	1543	5042		3242	1645			1799	2760
Flt Permitted	0.95	1.00	1.00	0.31	1.00		0.95	1.00			0.98	1.00
Satd. Flow (perm)	3433	3574	1538	508	5042		3242	1645			1799	2760
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	150	727	354	66	443	22	212	26	91	18	21	146
RTOR Reduction (vph)	0	0	146	0	4	0	0	78	0	0	0	0
Lane Group Flow (vph)	150	727	208	66	461	0	213	39	0	0	39	146
Heavy Vehicles (%)	2%	1%	5%	17%	2%	5%	8%	9%	0%	7%	0%	3%
Turn Type	Prot	NA	Perm	pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		4	4		3	3	3 5
Permitted Phases			2	6								
Actuated Green, G (s)	18.8	74.7	74.7	65.6	61.3		14.2	14.2			8.7	27.5
Effective Green, g (s)	22.3	79.3	79.3	74.8	65.9		18.9	18.9			11.9	33.9
Actuated g/C Ratio	0.17	0.59	0.59	0.55	0.49		0.14	0.14			0.09	0.25
Clearance Time (s)	7.5	8.6	8.6	8.6	8.6		8.7	8.7			7.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	567	2099	903	349	2461		453	230			158	693
v/s Ratio Prot	c0.04	c0.20		0.01	0.09		c0.07	0.02			c0.02	0.05
v/s Ratio Perm			0.14	0.09								
v/c Ratio	0.26	0.35	0.23	0.19	0.19		0.47	0.17			0.25	0.21
Uniform Delay, d1	49.2	14.4	13.3	21.1	19.5		53.4	51.1			57.4	40.0
Progression Factor	0.97	0.68	1.88	0.39	0.42		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.1	0.4	0.6	0.1	0.2		0.8	0.3			0.8	0.2
Delay (s)	47.7	10.3	25.6	8.3	8.4		54.2	51.5			58.2	40.1
Level of Service	D	B	C	A	A		D	D			E	D
Approach Delay (s)		19.2			8.4			53.2			43.9	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	656	91	44	395	20	65	10	48	22	8	49
Future Volume (vph)	55	656	91	44	395	20	65	10	48	22	8	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	3539	1599	1805	3471	1524	1715	1738	1583	1805	1805	1534
Flt Permitted	0.95	1.00	1.00	0.31	1.00	1.00	0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	3539	1599	583	3471	1524	1715	1738	1583	1805	1805	1534
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	713	99	48	429	22	71	11	52	24	9	53
RTOR Reduction (vph)	0	0	36	0	0	9	0	0	47	0	0	49
Lane Group Flow (vph)	60	713	63	48	429	13	35	47	5	24	9	4
Heavy Vehicles (%)	4%	2%	1%	0%	4%	6%	0%	0%	2%	0%	0%	0%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Prot
Protected Phases	5	2		1	6		4	4		3	3	3
Permitted Phases			2	6		6			4			
Actuated Green, G (s)	14.6	80.9	80.9	73.3	73.3	73.3	8.8	8.8	8.8	6.4	6.4	6.4
Effective Green, g (s)	18.4	85.5	85.5	77.9	77.9	77.9	12.5	12.5	12.5	10.2	10.2	10.2
Actuated g/C Ratio	0.14	0.63	0.63	0.58	0.58	0.58	0.09	0.09	0.09	0.08	0.08	0.08
Clearance Time (s)	7.8	8.6	8.6	8.6	8.6	8.6	7.7	7.7	7.7	7.8	7.8	7.8
Vehicle Extension (s)	2.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	458	2241	1012	434	2002	879	158	160	146	136	136	115
v/s Ratio Prot	0.02	c0.20		0.01	c0.12		0.02	c0.03		c0.01	0.00	0.00
v/s Ratio Perm			0.04	0.05		0.01			0.00			
v/c Ratio	0.13	0.32	0.06	0.11	0.21	0.01	0.22	0.29	0.03	0.18	0.07	0.03
Uniform Delay, d1	51.3	11.4	9.4	13.1	13.8	12.2	56.7	57.1	55.7	58.5	58.0	57.8
Progression Factor	0.72	0.23	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.4	0.1	0.1	0.2	0.0	0.7	1.0	0.1	0.6	0.2	0.1
Delay (s)	37.1	3.0	9.6	13.2	14.0	12.2	57.5	58.2	55.8	59.1	58.2	58.0
Level of Service	D	A	A	B	B	B	E	E	E	E	E	E
Approach Delay (s)		6.1			13.9			57.1			58.3	
Approach LOS		A			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	59	1282	2033	412	444	67
Future Volume (vph)	59	1282	2033	412	444	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.95	0.91		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3502	3574	5014		3502	1615
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3502	3574	5014		3502	1615
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	61	1322	2096	425	458	69
RTOR Reduction (vph)	0	0	21	0	0	56
Lane Group Flow (vph)	61	1322	2500	0	458	13
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	4.0	100.2	88.2		21.8	21.8
Effective Green, g (s)	8.0	102.2	90.2		24.8	24.8
Actuated g/C Ratio	0.06	0.76	0.67		0.18	0.18
Clearance Time (s)	8.0	6.0	6.0		7.0	7.0
Vehicle Extension (s)	2.0	5.0	5.0		3.0	3.0
Lane Grp Cap (vph)	207	2705	3350		643	296
v/s Ratio Prot	0.02	c0.37	c0.50		c0.13	
v/s Ratio Perm						0.01
v/c Ratio	0.29	0.49	0.75		0.71	0.04
Uniform Delay, d1	60.8	6.3	14.8		51.7	45.3
Progression Factor	1.00	1.00	0.45		1.00	1.00
Incremental Delay, d2	0.3	0.6	1.2		3.7	0.1
Delay (s)	61.1	7.0	7.9		55.5	45.4
Level of Service	E	A	A		E	D
Approach Delay (s)		9.3	7.9		54.2	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	491	875	360	266	1235	390	592	0	260	262	0	618
Future Volume (vph)	491	875	360	266	1235	390	592	0	260	262	0	618
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97		1.00	0.97		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	3502	3610	1599	3502	3574	1599	3467		1615	3502		1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	3502	3610	1599	3502	3574	1599	3467		1615	3502		1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	501	893	367	271	1260	398	604	0	265	267	0	631
RTOR Reduction (vph)	0	0	161	0	0	170	0	0	0	0	0	0
Lane Group Flow (vph)	501	893	206	271	1260	228	604	0	265	267	0	631
Heavy Vehicles (%)	0%	0%	1%	0%	1%	1%	1%	0%	0%	0%	0%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot		Free	Prot		Free
Protected Phases	5	2		1	6		3			7		
Permitted Phases			2			6			Free			Free
Actuated Green, G (s)	22.3	72.6	72.6	13.5	63.3	63.3	27.4		135.0	26.9		135.0
Effective Green, g (s)	26.3	75.6	75.6	17.0	66.3	66.3	30.4		135.0	30.4		135.0
Actuated g/C Ratio	0.19	0.56	0.56	0.13	0.49	0.49	0.23		1.00	0.23		1.00
Clearance Time (s)	8.0	7.0	7.0	7.5	7.0	7.0	7.0			7.5		
Vehicle Extension (s)	3.5	5.0	5.0	3.5	5.0	5.0	3.5			3.5		
Lane Grp Cap (vph)	682	2021	895	440	1755	785	780		1615	788		1599
v/s Ratio Prot	c0.14	0.25		0.08	c0.35		c0.17			0.08		
v/s Ratio Perm			0.13			0.14			0.16			0.39
v/c Ratio	0.73	0.44	0.23	0.62	0.72	0.29	0.77		0.16	0.34		0.39
Uniform Delay, d1	51.1	17.4	15.0	55.9	27.0	20.4	49.1		0.0	43.9		0.0
Progression Factor	1.12	0.74	0.03	0.98	0.67	0.60	1.00		1.00	1.00		1.00
Incremental Delay, d2	3.7	0.6	0.5	2.2	2.1	0.8	5.0		0.2	0.3		0.7
Delay (s)	60.9	13.4	0.9	56.9	20.3	13.1	54.0		0.2	44.2		0.7
Level of Service	E	B	A	E	C	B	D		A	D		A
Approach Delay (s)		24.3			23.9			37.6			13.6	
Approach LOS		C			C			D			B	

Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	887	254	60	1089	73	355	37	61	90	66	447
Future Volume (vph)	256	887	254	60	1089	73	355	37	61	90	66	447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91		0.97	1.00			1.00	0.88
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.91			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.97	1.00
Satd. Flow (prot)	3502	3574	1568	1805	5091		3502	1723			1847	2842
Flt Permitted	0.95	1.00	1.00	0.16	1.00		0.95	1.00			0.97	1.00
Satd. Flow (perm)	3502	3574	1568	312	5091		3502	1723			1847	2842
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	275	954	273	65	1171	78	382	40	66	97	71	481
RTOR Reduction (vph)	0	0	148	0	5	0	0	45	0	0	0	0
Lane Group Flow (vph)	275	954	125	65	1244	0	382	61	0	0	168	481
Heavy Vehicles (%)	0%	1%	3%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	pm+pt	NA		Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		4	4		3	3	3 5
Permitted Phases			2	6								
Actuated Green, G (s)	17.7	57.1	57.1	58.1	49.3		18.7	18.7			17.3	35.0
Effective Green, g (s)	21.2	61.7	61.7	67.3	53.9		23.4	23.4			20.5	41.4
Actuated g/C Ratio	0.16	0.46	0.46	0.50	0.40		0.17	0.17			0.15	0.31
Clearance Time (s)	7.5	8.6	8.6	8.6	8.6		8.7	8.7			7.2	
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	549	1633	716	303	2032		607	298			280	871
v/s Ratio Prot	0.08	c0.27		0.02	c0.24		c0.11	0.04			c0.09	c0.17
v/s Ratio Perm			0.08	0.09								
v/c Ratio	0.50	0.58	0.17	0.21	0.61		0.63	0.21			0.60	0.55
Uniform Delay, d1	52.1	27.1	21.6	35.4	32.2		51.8	47.8			53.4	39.1
Progression Factor	0.88	0.81	0.95	0.76	0.56		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.3	1.5	0.5	0.1	1.2		2.0	0.3			3.4	0.8
Delay (s)	46.1	23.5	21.0	26.9	19.3		53.8	48.2			56.9	39.8
Level of Service	D	C	C	C	B		D	D			E	D
Approach Delay (s)		27.2			19.6			52.6			44.2	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	867	59	72	1038	112	70	17	71	41	23	114
Future Volume (vph)	112	867	59	72	1038	112	70	17	71	41	23	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	3574	1615	1805	3574	1615	1715	1746	1615	1805	1805	1519
Flt Permitted	0.95	1.00	1.00	0.21	1.00	1.00	0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	3574	1615	402	3574	1615	1715	1746	1615	1805	1805	1519
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	120	932	63	77	1116	120	75	18	76	44	25	123
RTOR Reduction (vph)	0	0	25	0	0	51	0	0	68	0	0	111
Lane Group Flow (vph)	120	932	38	77	1116	69	37	56	8	44	25	12
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	Prot
Protected Phases	5	2		1	6		4	4		3	3	3
Permitted Phases			2	6		6			4			
Actuated Green, G (s)	10.7	75.9	75.9	72.8	72.8	72.8	10.6	10.6	10.6	9.0	9.0	9.0
Effective Green, g (s)	14.5	80.5	80.5	77.4	77.4	77.4	14.3	14.3	14.3	12.8	12.8	12.8
Actuated g/C Ratio	0.11	0.60	0.60	0.57	0.57	0.57	0.11	0.11	0.11	0.09	0.09	0.09
Clearance Time (s)	7.8	8.6	8.6	8.6	8.6	8.6	7.7	7.7	7.7	7.8	7.8	7.8
Vehicle Extension (s)	2.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	376	2131	963	348	2049	925	181	184	171	171	171	144
v/s Ratio Prot	0.03	c0.26		0.02	c0.31		0.02	c0.03		c0.02	0.01	0.01
v/s Ratio Perm			0.02	0.11		0.04			0.00			
v/c Ratio	0.32	0.44	0.04	0.22	0.54	0.07	0.20	0.30	0.05	0.26	0.15	0.08
Uniform Delay, d1	55.7	14.9	11.3	14.6	17.9	12.8	55.2	55.8	54.2	56.7	56.1	55.7
Progression Factor	0.58	0.21	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.6	0.1	0.3	1.0	0.2	0.6	0.9	0.1	0.8	0.4	0.2
Delay (s)	32.4	3.6	11.3	14.9	18.9	13.0	55.7	56.7	54.3	57.5	56.5	56.0
Level of Service	C	A	B	B	B	B	E	E	D	E	E	E
Approach Delay (s)		7.2			18.1			55.4			56.4	
Approach LOS		A			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	0	7	5	0	34	7	72	12	51	154	22
Future Vol, veh/h	16	0	7	5	0	34	7	72	12	51	154	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	6	0	14	0	0	0	14	10	0	0	7	14
Mvmt Flow	18	0	8	6	0	38	8	80	13	57	171	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	419	406	183	404	412	87	195	0	0	93	0	0
Stage 1	297	297	-	103	103	-	-	-	-	-	-	-
Stage 2	122	109	-	301	309	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.5	6.34	7.1	6.5	6.2	4.24	-	-	4.1	-	-
Critical Hdwy Stg 1	6.16	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4	3.426	3.5	4	3.3	2.326	-	-	2.2	-	-
Pot Cap-1 Maneuver	538	537	830	561	533	977	1309	-	-	1514	-	-
Stage 1	703	671	-	908	814	-	-	-	-	-	-	-
Stage 2	873	809	-	712	663	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	498	511	830	535	507	977	1309	-	-	1514	-	-
Mov Cap-2 Maneuver	498	511	-	535	507	-	-	-	-	-	-	-
Stage 1	699	643	-	903	809	-	-	-	-	-	-	-
Stage 2	834	804	-	676	635	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.6	9.3	0.6	1.7
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1309	-	-	567	883	1514	-	-
HCM Lane V/C Ratio	0.006	-	-	0.045	0.049	0.037	-	-
HCM Control Delay (s)	7.8	0	-	11.6	9.3	7.5	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	2	16	0	114	0	178	16	84	138	6
Future Vol, veh/h	7	0	2	16	0	114	0	178	16	84	138	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	4	0
Mvmt Flow	8	0	2	18	0	130	0	202	18	95	157	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	627	571	161	563	565	211	164	0	0	220	0	0
Stage 1	351	351	-	211	211	-	-	-	-	-	-	-
Stage 2	276	220	-	352	354	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	399	434	889	440	437	834	1427	-	-	1361	-	-
Stage 1	670	636	-	796	731	-	-	-	-	-	-	-
Stage 2	735	725	-	669	634	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	317	401	889	413	403	834	1427	-	-	1361	-	-
Mov Cap-2 Maneuver	317	401	-	413	403	-	-	-	-	-	-	-
Stage 1	670	587	-	796	731	-	-	-	-	-	-	-
Stage 2	621	725	-	616	585	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15	11.1	0	2.9
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1427	-	-	370	741	1361	-	-
HCM Lane V/C Ratio	-	-	-	0.028	0.199	0.07	-	-
HCM Control Delay (s)	0	-	-	15	11.1	7.8	0	-
HCM Lane LOS	A	-	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.7	0.2	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	2	16	0	114	0	178	16	84	138	6
Future Vol, veh/h	7	0	2	16	0	114	0	178	16	84	138	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	4	0
Mvmt Flow	8	0	2	18	0	130	0	202	18	95	157	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	627	571	161	563	565	211	164	0	0	220	0	0
Stage 1	351	351	-	211	211	-	-	-	-	-	-	-
Stage 2	276	220	-	352	354	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	399	434	889	440	437	834	1427	-	-	1361	-	-
Stage 1	670	636	-	796	731	-	-	-	-	-	-	-
Stage 2	735	725	-	669	634	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	317	401	889	413	403	834	1427	-	-	1361	-	-
Mov Cap-2 Maneuver	317	401	-	413	403	-	-	-	-	-	-	-
Stage 1	670	587	-	796	731	-	-	-	-	-	-	-
Stage 2	621	725	-	616	585	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15	11.1	0	2.9
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1427	-	-	370	741	1361	-	-
HCM Lane V/C Ratio	-	-	-	0.028	0.199	0.07	-	-
HCM Control Delay (s)	0	-	-	15	11.1	7.8	0	-
HCM Lane LOS	A	-	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.7	0.2	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	0	7	5	0	35	7	73	12	52	157	22
Future Vol, veh/h	16	0	7	5	0	35	7	73	12	52	157	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	6	0	14	0	0	0	14	10	0	0	7	14
Mvmt Flow	17	0	8	5	0	38	8	79	13	57	171	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	418	405	183	403	411	86	195	0	0	92	0	0
Stage 1	297	297	-	102	102	-	-	-	-	-	-	-
Stage 2	121	108	-	301	309	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.5	6.34	7.1	6.5	6.2	4.24	-	-	4.1	-	-
Critical Hdwy Stg 1	6.16	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4	3.426	3.5	4	3.3	2.326	-	-	2.2	-	-
Pot Cap-1 Maneuver	538	538	830	562	534	978	1309	-	-	1515	-	-
Stage 1	703	671	-	909	815	-	-	-	-	-	-	-
Stage 2	874	810	-	712	663	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	498	512	830	537	508	978	1309	-	-	1515	-	-
Mov Cap-2 Maneuver	498	512	-	537	508	-	-	-	-	-	-	-
Stage 1	699	643	-	904	810	-	-	-	-	-	-	-
Stage 2	835	805	-	676	635	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.6	9.3	0.6	1.7
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1309	-	-	567	887	1515	-	-
HCM Lane V/C Ratio	0.006	-	-	0.044	0.049	0.037	-	-
HCM Control Delay (s)	7.8	0	-	11.6	9.3	7.5	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	2	16	0	116	0	182	16	85	141	6
Future Vol, veh/h	7	0	2	16	0	116	0	182	16	85	141	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	4	0
Mvmt Flow	8	0	2	17	0	126	0	198	17	92	153	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	611	556	157	549	551	207	160	0	0	215	0	0
Stage 1	341	341	-	207	207	-	-	-	-	-	-	-
Stage 2	270	215	-	342	344	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	409	442	894	450	445	839	1432	-	-	1367	-	-
Stage 1	678	642	-	800	734	-	-	-	-	-	-	-
Stage 2	740	729	-	677	640	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	328	409	894	423	412	839	1432	-	-	1367	-	-
Mov Cap-2 Maneuver	328	409	-	423	412	-	-	-	-	-	-	-
Stage 1	678	594	-	800	734	-	-	-	-	-	-	-
Stage 2	629	729	-	625	593	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.7	10.9	0	2.9
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1432	-	-	382	750	1367	-	-
HCM Lane V/C Ratio	-	-	-	0.026	0.191	0.068	-	-
HCM Control Delay (s)	0	-	-	14.7	10.9	7.8	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.7	0.2	-	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	0	12	5	0	35	12	73	12	52	157	67
Future Vol, veh/h	60	0	12	5	0	35	12	73	12	52	157	67
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	0	13	0	0	0	9	13	0	0	4	12
Mvmt Flow	65	0	13	5	0	38	13	79	13	57	171	73

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	453	440	208	440	470	86	244	0	0	92	0	0
Stage 1	322	322	-	112	112	-	-	-	-	-	-	-
Stage 2	131	118	-	328	358	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.5	6.33	7.1	6.5	6.2	4.19	-	-	4.1	-	-
Critical Hdwy Stg 1	6.15	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4	3.417	3.5	4	3.3	2.281	-	-	2.2	-	-
Pot Cap-1 Maneuver	512	514	805	531	495	978	1282	-	-	1515	-	-
Stage 1	684	655	-	898	807	-	-	-	-	-	-	-
Stage 2	865	802	-	689	631	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	472	486	805	501	468	978	1282	-	-	1515	-	-
Mov Cap-2 Maneuver	472	486	-	501	468	-	-	-	-	-	-	-
Stage 1	676	626	-	888	798	-	-	-	-	-	-	-
Stage 2	822	793	-	648	603	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.4	9.3	1	1.4
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1282	-	-	507	874	1515	-	-
HCM Lane V/C Ratio	0.01	-	-	0.154	0.05	0.037	-	-
HCM Control Delay (s)	7.8	0	-	13.4	9.3	7.5	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	0	7	16	0	116	5	182	16	85	141	51
Future Vol, veh/h	51	0	7	16	0	116	5	182	16	85	141	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	4	0
Mvmt Flow	55	0	8	17	0	126	5	198	17	92	153	55

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	645	590	181	586	609	207	208	0	0	215	0	0
Stage 1	365	365	-	217	217	-	-	-	-	-	-	-
Stage 2	280	225	-	369	392	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	388	423	867	425	412	839	1375	-	-	1367	-	-
Stage 1	658	627	-	790	727	-	-	-	-	-	-	-
Stage 2	731	721	-	655	610	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	309	389	867	395	379	839	1375	-	-	1367	-	-
Mov Cap-2 Maneuver	309	389	-	395	379	-	-	-	-	-	-	-
Stage 1	655	579	-	787	724	-	-	-	-	-	-	-
Stage 2	619	718	-	599	563	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.2	11.1	0.2	2.4
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1375	-	-	335	738	1367	-	-
HCM Lane V/C Ratio	0.004	-	-	0.188	0.194	0.068	-	-
HCM Control Delay (s)	7.6	0	-	18.2	11.1	7.8	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0.7	0.2	-	-

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	216	5	28	5	3	32	21	68	11	48	144	231
Future Vol, veh/h	216	5	28	5	3	32	21	68	11	48	144	231
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	0	13	0	0	0	9	13	0	0	4	12
Mvmt Flow	235	5	30	5	3	35	23	74	12	52	157	251

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	346	393	157	530	638	43	408	0	0	86	0	0
Stage 1	261	261	-	126	126	-	-	-	-	-	-	-
Stage 2	85	132	-	404	512	-	-	-	-	-	-	-
Critical Hdwy	7.375	6.5	6.395	7.3	6.5	6.9	4.235	-	-	4.1	-	-
Critical Hdwy Stg 1	6.175	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.575	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5475	4	3.4235	3.5	4	3.3	2.2855	-	-	2.2	-	-
Pot Cap-1 Maneuver	589	546	857	449	397	1025	1106	-	-	1523	-	-
Stage 1	736	696	-	870	796	-	-	-	-	-	-	-
Stage 2	906	791	-	627	540	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	536	509	857	408	370	1025	1106	-	-	1523	-	-
Mov Cap-2 Maneuver	536	509	-	408	370	-	-	-	-	-	-	-
Stage 1	720	664	-	851	778	-	-	-	-	-	-	-
Stage 2	852	774	-	572	515	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.3	9.9	1.8	0.8
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1106	-	-	559	775	1523	-	-
HCM Lane V/C Ratio	0.021	-	-	0.484	0.056	0.034	-	-
HCM Control Delay (s)	8.3	0.1	-	17.3	9.9	7.4	0	-
HCM Lane LOS	A	A	-	C	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.6	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	165	4	14	15	5	112	13	176	15	82	136	162
Future Vol, veh/h	165	4	14	15	5	112	13	176	15	82	136	162
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	4	0
Mvmt Flow	179	4	15	16	5	122	14	191	16	89	148	176

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	452	561	148	651	729	104	324	0	0	207	0	0
Stage 1	326	326	-	227	227	-	-	-	-	-	-	-
Stage 2	126	235	-	424	502	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.5	6.2	7.3	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	508	439	904	371	352	937	1247	-	-	1376	-	-
Stage 1	691	652	-	761	720	-	-	-	-	-	-	-
Stage 2	870	714	-	612	545	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	405	398	904	336	319	937	1247	-	-	1376	-	-
Mov Cap-2 Maneuver	405	398	-	336	319	-	-	-	-	-	-	-
Stage 1	682	599	-	751	711	-	-	-	-	-	-	-
Stage 2	741	705	-	549	501	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.8	11.1	0.5	1.7
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1247	-	-	423	734	1376	-	-
HCM Lane V/C Ratio	0.011	-	-	0.47	0.195	0.065	-	-
HCM Control Delay (s)	7.9	0	-	20.8	11.1	7.8	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2.4	0.7	0.2	-	-

Queuing and Blocking Report

Intersection: 3: Route 321 & WindsorMeade Way

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	TR	L	L	R
Maximum Queue (ft)	26	79	192	202	180	190	209	186	198	34
Average Queue (ft)	2	24	76	74	55	69	88	96	93	7
95th Queue (ft)	13	62	151	153	136	153	174	163	166	26
Link Distance (ft)			870	870	814	814	814	1179	1179	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	385	385								235
Storage Blk Time (%)									0	
Queuing Penalty (veh)									0	

Intersection: 4: Route 199 & Route 321

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	T	T	L	L	T	T	L	L	L	L
Maximum Queue (ft)	194	214	226	248	57	75	161	187	182	220	21	49
Average Queue (ft)	81	111	111	120	12	28	61	85	60	120	1	2
95th Queue (ft)	155	179	192	207	41	64	135	158	159	199	10	21
Link Distance (ft)			814	814			750	750				
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	445	445			455	455			575	575	480	480
Storage Blk Time (%)												
Queuing Penalty (veh)												

Queuing and Blocking Report

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	L	T	T	R	L	T	T	TR	L	LTR	LT
Maximum Queue (ft)	107	134	184	344	102	29	131	127	107	127	180	80
Average Queue (ft)	39	61	54	85	7	3	52	42	35	29	70	27
95th Queue (ft)	87	112	138	240	71	17	109	100	87	82	141	64
Link Distance (ft)			750	750	750		645	645	645		310	819
Upstream Blk Time (%)											0	
Queuing Penalty (veh)											0	
Storage Bay Dist (ft)	340	340				275				255		
Storage Blk Time (%)											0	
Queuing Penalty (veh)											0	

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	SB	SB
Directions Served	R	R
Maximum Queue (ft)	155	73
Average Queue (ft)	68	27
95th Queue (ft)	125	63
Link Distance (ft)	819	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		265
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	LT	R
Maximum Queue (ft)	58	84	123	135	39	60	126	107	13	89	88	60
Average Queue (ft)	11	35	22	31	7	15	44	25	1	37	27	27
95th Queue (ft)	39	74	77	89	29	40	100	71	7	78	67	55
Link Distance (ft)			645	645			724	724		438	438	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	320	320			265	325			280			115
Storage Blk Time (%)											0	
Queuing Penalty (veh)											0	

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	SB	SB	SB
Directions Served	L	TR	R
Maximum Queue (ft)	39	59	31
Average Queue (ft)	10	21	7
95th Queue (ft)	33	50	27
Link Distance (ft)	539	539	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			150
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Old Ironbound & Ironbound Cul De Sac/CC2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	59	42	22	37
Average Queue (ft)	18	21	1	4
95th Queue (ft)	48	45	11	21
Link Distance (ft)	578	397	807	310
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report

Intersection: 3: Route 321 & WindsorMeade Way

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	TR	L	L	R
Maximum Queue (ft)	69	250	503	460	195	239	269	500	465	199
Average Queue (ft)	13	69	203	160	117	153	182	260	222	45
95th Queue (ft)	52	181	471	411	181	218	252	491	456	155
Link Distance (ft)			870	870	814	814	814	1179	1179	
Upstream Blk Time (%)			1	0						
Queuing Penalty (veh)			0	0						
Storage Bay Dist (ft)	385	385								235
Storage Blk Time (%)		0	4						10	0
Queuing Penalty (veh)		0	2						6	0

Intersection: 4: Route 199 & Route 321

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	L	L	T	T	R	L	L	R
Maximum Queue (ft)	441	445	823	822	253	455	726	735	584	459	515	271
Average Queue (ft)	385	399	509	413	138	324	547	561	89	300	350	23
95th Queue (ft)	513	513	1022	918	298	589	850	857	473	466	508	219
Link Distance (ft)			814	814			750	750	750			893
Upstream Blk Time (%)			10	1			2	4	0			
Queuing Penalty (veh)			84	12			13	26	1			
Storage Bay Dist (ft)	445	445			455	455				575	575	
Storage Blk Time (%)	2	29	18		0	1	30			0	0	0
Queuing Penalty (veh)	7	121	86		0	8	73			0	1	1

Intersection: 4: Route 199 & Route 321

Movement	SB	SB
Directions Served	L	L
Maximum Queue (ft)	9	26
Average Queue (ft)	0	1
95th Queue (ft)	5	12
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	480	480
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	L	T	T	R	L	T	T	TR	L	LTR	LT
Maximum Queue (ft)	160	177	254	485	73	113	346	339	313	220	256	550
Average Queue (ft)	74	90	93	110	7	10	164	169	139	104	152	204
95th Queue (ft)	136	151	187	264	44	58	314	313	277	190	230	574
Link Distance (ft)			750	750	750		645	645	645		310	819
Upstream Blk Time (%)											0	3
Queuing Penalty (veh)											0	0
Storage Bay Dist (ft)	340	340				275				255		
Storage Blk Time (%)			0			0	2			0	0	
Queuing Penalty (veh)			0			0	0			0	0	

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	SB	SB
Directions Served	R	R
Maximum Queue (ft)	598	264
Average Queue (ft)	273	125
95th Queue (ft)	649	280
Link Distance (ft)	819	
Upstream Blk Time (%)	7	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		265
Storage Blk Time (%)	17	1
Queuing Penalty (veh)	38	2

Queuing and Blocking Report

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	LT	R
Maximum Queue (ft)	84	97	134	138	41	242	413	445	255	99	130	90
Average Queue (ft)	22	48	41	52	7	37	197	204	33	41	45	37
95th Queue (ft)	63	88	104	116	28	117	351	358	164	83	97	72
Link Distance (ft)			645	645			724	724		438	438	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	320	320			265	325			280			115
Storage Blk Time (%)						0	1	3	0		1	0
Queuing Penalty (veh)						0	1	3	1		1	0

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	SB	SB	SB
Directions Served	L	TR	R
Maximum Queue (ft)	92	152	92
Average Queue (ft)	28	60	21
95th Queue (ft)	68	116	57
Link Distance (ft)	539	539	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			150
Storage Blk Time (%)		0	0
Queuing Penalty (veh)		0	0

Intersection: 11: Old Ironbound & Ironbound Cul De Sac/CC2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	34	88	6	64
Average Queue (ft)	8	41	0	16
95th Queue (ft)	29	68	5	47
Link Distance (ft)	578	397	807	310
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 490

Queuing and Blocking Report

Intersection: 3: Route 321 & WindsorMeade Way

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	TR	L	L	R
Maximum Queue (ft)	60	113	253	215	217	246	276	294	258	157
Average Queue (ft)	9	51	124	101	128	164	198	184	150	27
95th Queue (ft)	36	98	213	182	209	238	271	270	239	83
Link Distance (ft)			870	870	837	837	837	1179	1179	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	385	385								235
Storage Blk Time (%)									0	0
Queuing Penalty (veh)									0	0

Intersection: 4: Route 199 & Route 321

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	T	T	L	L	T	T	L	L	L	L
Maximum Queue (ft)	374	387	336	234	157	380	556	587	378	431	48	66
Average Queue (ft)	240	266	133	114	78	148	310	335	238	287	2	5
95th Queue (ft)	385	404	280	193	150	361	557	575	351	402	20	30
Link Distance (ft)			837	837			776	776				
Upstream Blk Time (%)							0	0				
Queuing Penalty (veh)							0	0				
Storage Bay Dist (ft)	445	445			455	455			575	575	480	480
Storage Blk Time (%)	0	0	0			0	5					
Queuing Penalty (veh)	0	2	1			1	12					

Queuing and Blocking Report

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	L	T	T	R	L	T	T	TR	L	LTR	LT
Maximum Queue (ft)	147	157	354	457	40	60	320	328	306	226	261	213
Average Queue (ft)	72	88	85	105	6	6	160	166	127	105	149	108
95th Queue (ft)	126	142	212	261	25	37	297	298	255	187	229	182
Link Distance (ft)			776	776	776		645	645	645		310	819
Upstream Blk Time (%)											0	
Queuing Penalty (veh)											0	
Storage Bay Dist (ft)	340	340				275				255		
Storage Blk Time (%)							1			0	0	
Queuing Penalty (veh)							0			0	0	

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	SB	SB
Directions Served	R	R
Maximum Queue (ft)	300	246
Average Queue (ft)	148	79
95th Queue (ft)	238	177
Link Distance (ft)	819	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		265
Storage Blk Time (%)	0	0
Queuing Penalty (veh)	1	0

Queuing and Blocking Report

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	LT	R
Maximum Queue (ft)	91	101	134	139	35	284	385	413	254	101	109	87
Average Queue (ft)	23	45	47	59	7	44	197	206	27	43	37	36
95th Queue (ft)	65	86	109	124	28	141	341	362	144	86	83	69
Link Distance (ft)			645	645			724	724		438	438	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	320	320			265	325			280			115
Storage Blk Time (%)						0	1	3	0		0	0
Queuing Penalty (veh)						0	1	3	0		0	0

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	SB	SB	SB
Directions Served	L	TR	R
Maximum Queue (ft)	93	151	79
Average Queue (ft)	29	60	20
95th Queue (ft)	69	119	60
Link Distance (ft)	539	539	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			150
Storage Blk Time (%)		1	0
Queuing Penalty (veh)		0	0

Intersection: 11: Old Ironbound & Ironbound Cul De Sac/CC2

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	32	85	55
Average Queue (ft)	8	39	15
95th Queue (ft)	29	64	44
Link Distance (ft)	578	397	310
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 23

Queuing and Blocking Report

Intersection: 3: Route 321 & WindsorMeade Way

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	TR	L	L	R
Maximum Queue (ft)	26	67	184	214	190	217	244	186	190	25
Average Queue (ft)	2	24	75	82	58	75	102	99	92	6
95th Queue (ft)	15	58	152	168	139	161	192	167	160	23
Link Distance (ft)			870	870	814	814	814	1179	1179	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	385	385								235
Storage Blk Time (%)									0	
Queuing Penalty (veh)									0	

Intersection: 4: Route 199 & Route 321

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	T	T	L	L	T	T	L	L	L	L
Maximum Queue (ft)	208	231	224	235	74	89	161	190	194	220	15	42
Average Queue (ft)	89	117	122	128	15	32	64	85	64	122	1	3
95th Queue (ft)	173	194	203	214	51	72	135	158	166	199	10	22
Link Distance (ft)			814	814			750	750				
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	445	445			455	455			575	575	480	480
Storage Blk Time (%)												
Queuing Penalty (veh)												

Queuing and Blocking Report

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	L	T	T	R	L	T	T	TR	L	LTR	LT
Maximum Queue (ft)	102	126	242	285	122	35	134	132	129	127	169	82
Average Queue (ft)	40	63	56	77	10	3	50	43	36	36	70	27
95th Queue (ft)	87	112	159	217	76	17	111	106	95	92	136	65
Link Distance (ft)			750	750	750		645	645	645		310	819
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	340	340				275				255		
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	SB	SB
Directions Served	R	R
Maximum Queue (ft)	175	82
Average Queue (ft)	70	29
95th Queue (ft)	131	68
Link Distance (ft)	819	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		265
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	LT	R
Maximum Queue (ft)	55	87	139	143	38	68	149	138	20	97	92	78
Average Queue (ft)	10	39	27	37	7	15	51	37	1	39	32	29
95th Queue (ft)	39	77	83	96	29	45	117	97	10	84	74	60
Link Distance (ft)			645	645			724	724		438	438	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	320	320			265	325			280			115
Storage Blk Time (%)											0	0
Queuing Penalty (veh)											0	0

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	SB	SB	SB
Directions Served	L	TR	R
Maximum Queue (ft)	53	78	33
Average Queue (ft)	13	27	11
95th Queue (ft)	41	59	34
Link Distance (ft)	539	539	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			150
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Old Ironbound & Ironbound Cul De Sac/CC2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	59	49	26	41
Average Queue (ft)	17	23	1	5
95th Queue (ft)	47	48	11	25
Link Distance (ft)	578	397	807	310
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report

Intersection: 3: Route 321 & WindsorMeade Way

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	TR	L	L	R
Maximum Queue (ft)	76	148	291	236	230	252	279	360	327	153
Average Queue (ft)	12	61	151	104	131	167	198	221	182	38
95th Queue (ft)	49	141	272	211	209	243	272	393	354	130
Link Distance (ft)			870	870	837	837	837	1179	1179	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	385	385								235
Storage Blk Time (%)		0	1						6	0
Queuing Penalty (veh)		0	0						4	0

Intersection: 4: Route 199 & Route 321

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	L	L	T	T	R	L	L	R
Maximum Queue (ft)	432	442	682	654	150	397	629	646	210	434	483	85
Average Queue (ft)	335	352	357	280	75	141	345	369	18	265	314	14
95th Queue (ft)	513	517	836	716	134	358	613	630	199	416	461	177
Link Distance (ft)			837	837			776	776	776			894
Upstream Blk Time (%)			2	0			0	0				
Queuing Penalty (veh)			16	2			1	2				
Storage Bay Dist (ft)	445	445			455	455				575	575	
Storage Blk Time (%)	1	18	10			0	7			0	0	0
Queuing Penalty (veh)	5	76	47			1	18			0	1	1

Intersection: 4: Route 199 & Route 321

Movement	SB	SB
Directions Served	L	L
Maximum Queue (ft)	34	54
Average Queue (ft)	2	5
95th Queue (ft)	15	26
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	480	480
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	L	T	T	R	L	T	T	TR	L	LTR	LT
Maximum Queue (ft)	155	170	321	420	46	81	370	356	310	223	246	226
Average Queue (ft)	79	95	91	104	5	7	158	163	129	107	146	108
95th Queue (ft)	136	150	208	239	23	45	308	304	261	187	219	187
Link Distance (ft)			776	776	776		645	645	645		310	819
Upstream Blk Time (%)											0	
Queuing Penalty (veh)											0	
Storage Bay Dist (ft)	340	340				275				255		
Storage Blk Time (%)							2			0	0	
Queuing Penalty (veh)							0			0	0	

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	SB	SB
Directions Served	R	R
Maximum Queue (ft)	295	259
Average Queue (ft)	154	81
95th Queue (ft)	244	183
Link Distance (ft)	819	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		265
Storage Blk Time (%)	1	0
Queuing Penalty (veh)	1	0

Queuing and Blocking Report

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	LT	R
Maximum Queue (ft)	93	116	139	149	43	232	441	431	280	104	113	94
Average Queue (ft)	26	51	45	59	9	39	215	219	40	41	41	36
95th Queue (ft)	68	92	106	121	32	117	373	388	183	86	88	73
Link Distance (ft)			645	645			724	724		438	438	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	320	320			265	325			280			115
Storage Blk Time (%)						0	2	4	0		0	0
Queuing Penalty (veh)						0	1	4	1		0	0

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	SB	SB	SB
Directions Served	L	TR	R
Maximum Queue (ft)	101	162	115
Average Queue (ft)	36	64	25
95th Queue (ft)	82	125	73
Link Distance (ft)	539	539	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			150
Storage Blk Time (%)		1	0
Queuing Penalty (veh)		0	0

Intersection: 11: Old Ironbound & Ironbound Cul De Sac/CC2

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	36	71	61
Average Queue (ft)	8	38	15
95th Queue (ft)	30	59	45
Link Distance (ft)	578	397	310
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 184

Intersection: 3: Route 321 & WindsorMeade Way

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	TR	L	L	R
Maximum Queue (ft)	18	65	190	201	182	202	234	193	197	27
Average Queue (ft)	1	22	80	85	63	77	106	98	93	5
95th Queue (ft)	11	54	157	169	146	168	202	168	169	21
Link Distance (ft)			870	870	814	814	814	1179	1179	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	385	385								235
Storage Blk Time (%)									0	
Queuing Penalty (veh)									0	

Intersection: 4: Route 199 & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	L	T	T	R	L	L	T	T	L	L	L
Maximum Queue (ft)	218	241	263	285	39	81	103	192	219	185	219	33
Average Queue (ft)	91	119	128	135	1	20	37	70	98	67	124	2
95th Queue (ft)	178	202	222	235	38	59	82	152	184	168	202	15
Link Distance (ft)			814	814				750	750			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	445	445			390	455	455			575	575	480
Storage Blk Time (%)				0	0							
Queuing Penalty (veh)				0	0							

Intersection: 4: Route 199 & Route 321

Movement	SB
Directions Served	L
Maximum Queue (ft)	54
Average Queue (ft)	4
95th Queue (ft)	26
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	480
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	L	T	T	R	L	T	T	TR	L	LTR	LT
Maximum Queue (ft)	115	130	219	331	53	67	148	141	126	142	186	66
Average Queue (ft)	40	64	57	76	10	13	51	45	39	48	90	25
95th Queue (ft)	90	111	160	220	37	45	117	107	98	109	163	58
Link Distance (ft)			750	750	750		645	645	645		310	819
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	340	340				275				255		
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	SB	SB
Directions Served	R	R
Maximum Queue (ft)	176	94
Average Queue (ft)	83	34
95th Queue (ft)	148	79
Link Distance (ft)	819	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		265
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	LT	R
Maximum Queue (ft)	51	79	171	172	67	55	144	122	16	106	92	80
Average Queue (ft)	11	39	39	42	11	17	57	37	1	42	33	28
95th Queue (ft)	38	73	111	116	46	42	122	94	8	85	77	62
Link Distance (ft)			645	645			724	724		438	438	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	320	320			265	325			280			115
Storage Blk Time (%)				0	0						0	0
Queuing Penalty (veh)				0	0						0	0

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	SB	SB	SB
Directions Served	L	TR	R
Maximum Queue (ft)	62	70	37
Average Queue (ft)	19	27	9
95th Queue (ft)	49	57	33
Link Distance (ft)	539	539	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			150
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Old Ironbound & Ironbound Cul De Sac/CC2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	71	42	27	46
Average Queue (ft)	34	22	2	5
95th Queue (ft)	60	46	13	26
Link Distance (ft)	578	397	807	310
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report

Intersection: 3: Route 321 & WindsorMeade Way

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	TR	L	L	R
Maximum Queue (ft)	66	225	414	354	220	249	274	479	439	200
Average Queue (ft)	13	60	197	147	119	158	186	241	207	41
95th Queue (ft)	46	152	386	306	193	232	265	436	391	139
Link Distance (ft)			870	870	837	837	837	1179	1179	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	385	385								235
Storage Blk Time (%)		0	2						7	0
Queuing Penalty (veh)		0	1						5	0

Intersection: 4: Route 199 & Route 321

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	L	T	T	L	L	T	T	R	L	L	L
Maximum Queue (ft)	431	441	790	767	182	427	588	596	61	399	444	40
Average Queue (ft)	364	379	459	362	99	174	335	357	2	245	299	2
95th Queue (ft)	515	518	1002	868	193	400	558	574	60	366	417	18
Link Distance (ft)			837	837			776	776	776			
Upstream Blk Time (%)			8	1								
Queuing Penalty (veh)			65	4								
Storage Bay Dist (ft)	445	445			455	455				575	575	480
Storage Blk Time (%)	1	27	19			0	5					
Queuing Penalty (veh)	5	118	93			1	13					

Intersection: 4: Route 199 & Route 321

Movement	SB
Directions Served	L
Maximum Queue (ft)	69
Average Queue (ft)	6
95th Queue (ft)	33
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	480
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	L	T	T	R	L	T	T	TR	L	LTR	LT
Maximum Queue (ft)	148	174	281	496	51	54	315	312	286	248	292	224
Average Queue (ft)	78	95	104	122	8	13	151	155	124	128	171	110
95th Queue (ft)	134	153	207	290	32	40	283	278	243	217	252	189
Link Distance (ft)			776	776	776		645	645	645		310	819
Upstream Blk Time (%)											0	
Queuing Penalty (veh)											0	
Storage Bay Dist (ft)	340	340				275				255		
Storage Blk Time (%)							1			0	1	
Queuing Penalty (veh)							0			0	1	

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	SB	SB
Directions Served	R	R
Maximum Queue (ft)	332	260
Average Queue (ft)	158	83
95th Queue (ft)	262	191
Link Distance (ft)	819	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		265
Storage Blk Time (%)	1	0
Queuing Penalty (veh)	3	0

Queuing and Blocking Report

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	LT	R
Maximum Queue (ft)	91	109	125	137	38	207	458	467	280	90	105	95
Average Queue (ft)	27	52	44	59	7	41	219	224	45	41	38	37
95th Queue (ft)	71	93	102	121	28	125	385	391	199	83	84	72
Link Distance (ft)			645	645			724	724		438	438	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	320	320			265	325			280			115
Storage Blk Time (%)						0	2	3	0		0	0
Queuing Penalty (veh)						0	1	4	1		0	0

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	SB	SB	SB
Directions Served	L	TR	R
Maximum Queue (ft)	102	156	97
Average Queue (ft)	38	61	23
95th Queue (ft)	83	120	66
Link Distance (ft)	539	539	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			150
Storage Blk Time (%)		1	0
Queuing Penalty (veh)		0	0

Intersection: 11: Old Ironbound & Ironbound Cul De Sac/CC2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	61	70	26	72
Average Queue (ft)	29	40	1	18
95th Queue (ft)	53	63	13	54
Link Distance (ft)	578	397	807	310
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 318

Queuing and Blocking Report

Intersection: 3: Route 321 & WindsorMeade Way

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	TR	L	L	R
Maximum Queue (ft)	33	83	203	228	152	178	216	207	215	26
Average Queue (ft)	2	23	80	85	49	69	95	95	99	6
95th Queue (ft)	17	61	160	172	124	148	182	171	179	23
Link Distance (ft)			870	870	814	814	814	1179	1179	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	385	385								235
Storage Blk Time (%)									0	
Queuing Penalty (veh)									0	

Intersection: 4: Route 199 & Route 321

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	L	T	T	L	L	T	T	L	L	L	L
Maximum Queue (ft)	209	227	207	247	96	107	156	177	187	221	10	53
Average Queue (ft)	109	135	104	120	30	48	54	76	76	129	0	5
95th Queue (ft)	180	203	182	207	76	93	124	148	175	205	5	26
Link Distance (ft)			814	814			744	744				
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	445	445			455	455			575	575	480	480
Storage Blk Time (%)												
Queuing Penalty (veh)												

Queuing and Blocking Report

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	TR	L	L	TR
Maximum Queue (ft)	94	124	223	289	106	151	160	143	149	172	201	156
Average Queue (ft)	29	54	80	98	26	52	65	53	47	71	104	49
95th Queue (ft)	73	101	182	210	73	116	136	121	111	141	174	111
Link Distance (ft)			744	744	744		639	639	639		310	310
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	340	340				275				255		
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	SB	SB	SB
Directions Served	LT	R	R
Maximum Queue (ft)	97	148	71
Average Queue (ft)	37	61	25
95th Queue (ft)	84	116	61
Link Distance (ft)	819	819	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			265
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	LT	R
Maximum Queue (ft)	60	77	125	130	47	55	155	137	13	105	87	74
Average Queue (ft)	12	36	37	51	11	14	61	39	1	40	28	28
95th Queue (ft)	43	70	98	112	36	39	132	100	6	87	70	57
Link Distance (ft)			639	639			724	724		438	438	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	320	320			265	325			280			115
Storage Blk Time (%)											0	0
Queuing Penalty (veh)											0	0

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	SB	SB	SB
Directions Served	L	TR	R
Maximum Queue (ft)	74	77	33
Average Queue (ft)	22	29	9
95th Queue (ft)	57	63	31
Link Distance (ft)	539	539	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			150
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 11: Old Ironbound & Ironbound Cul De Sac/CC2

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	R
Maximum Queue (ft)	138	50	53	2	43	16
Average Queue (ft)	61	22	7	0	5	1
95th Queue (ft)	108	46	30	2	25	7
Link Distance (ft)	571	382	281	281	310	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						150
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report

Intersection: 3: Route 321 & WindsorMeade Way

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	TR	L	L	R
Maximum Queue (ft)	48	164	335	303	248	268	287	336	287	148
Average Queue (ft)	10	61	169	136	121	157	187	209	178	32
95th Queue (ft)	35	170	367	311	199	236	263	357	317	106
Link Distance (ft)			870	870	837	837	837	1179	1179	
Upstream Blk Time (%)			0							
Queuing Penalty (veh)			0							
Storage Bay Dist (ft)	385	385								235
Storage Blk Time (%)		0	2						4	0
Queuing Penalty (veh)		0	1						2	0

Intersection: 4: Route 199 & Route 321

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	L	L	T	T	R	L	L	R
Maximum Queue (ft)	375	391	558	547	178	453	596	600	76	393	441	34
Average Queue (ft)	285	308	314	247	93	178	350	375	5	246	298	1
95th Queue (ft)	472	481	793	661	164	412	588	604	100	359	411	34
Link Distance (ft)			837	837			770	770	770			894
Upstream Blk Time (%)			4	1			0	0	0			
Queuing Penalty (veh)			39	5			0	0	0			
Storage Bay Dist (ft)	445	445			455	455				575	575	
Storage Blk Time (%)	1	14	10			0	6					
Queuing Penalty (veh)	3	62	47			1	16					

Intersection: 4: Route 199 & Route 321

Movement	SB	SB
Directions Served	L	L
Maximum Queue (ft)	36	59
Average Queue (ft)	2	7
95th Queue (ft)	16	32
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	480	480
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	TR	L	L	TR
Maximum Queue (ft)	155	170	271	421	103	198	340	327	269	240	264	132
Average Queue (ft)	78	95	122	139	16	52	147	151	112	132	163	50
95th Queue (ft)	136	153	218	284	62	130	280	279	226	208	236	105
Link Distance (ft)			770	770	770		639	639	639		310	310
Upstream Blk Time (%)											0	
Queuing Penalty (veh)											0	
Storage Bay Dist (ft)	340	340				275				255		
Storage Blk Time (%)			0			0	1			0	0	
Queuing Penalty (veh)			0			0	1			0	1	

Intersection: 5: Old Ironbound Road/Casey Blvd. & Route 321

Movement	SB	SB	SB
Directions Served	LT	R	R
Maximum Queue (ft)	231	264	202
Average Queue (ft)	113	144	71
95th Queue (ft)	195	231	155
Link Distance (ft)	819	819	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			265
Storage Blk Time (%)		0	0
Queuing Penalty (veh)		1	0

Queuing and Blocking Report

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	LT	R
Maximum Queue (ft)	89	108	132	148	34	183	413	449	257	105	108	97
Average Queue (ft)	29	52	32	47	5	38	205	203	39	45	39	36
95th Queue (ft)	71	95	93	113	23	109	358	368	180	91	85	71
Link Distance (ft)			639	639			724	724		438	438	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	320	320			265	325			280			115
Storage Blk Time (%)				0		0	2	3	0		0	0
Queuing Penalty (veh)				0		0	1	4	1		0	0

Intersection: 6: CC 1/Settler's Market Boulevard & Route 321

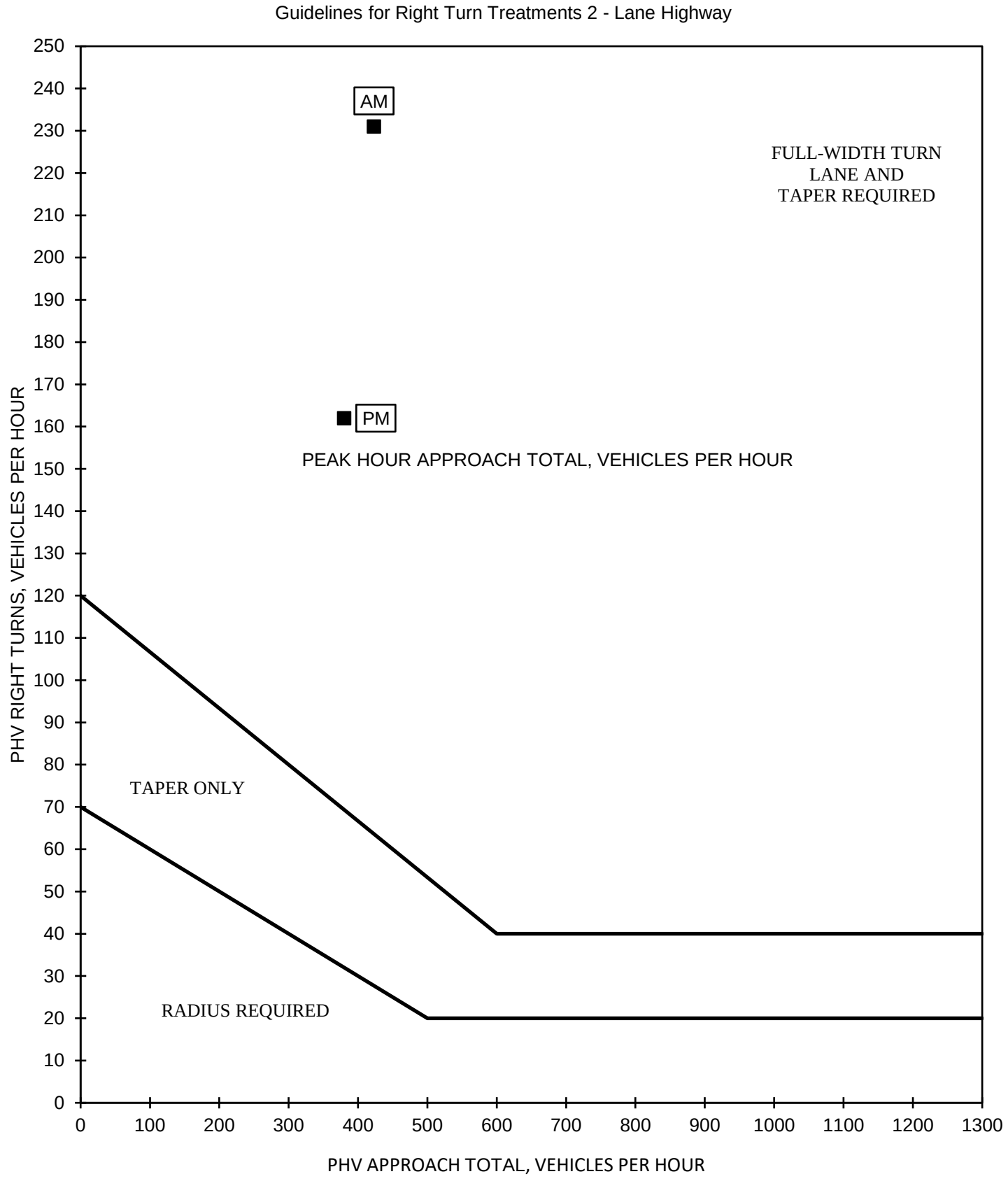
Movement	SB	SB	SB
Directions Served	L	TR	R
Maximum Queue (ft)	103	154	132
Average Queue (ft)	38	64	29
95th Queue (ft)	81	122	78
Link Distance (ft)	539	539	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			150
Storage Blk Time (%)		0	0
Queuing Penalty (veh)		0	0

Intersection: 11: Old Ironbound & Ironbound Cul De Sac/CC2

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	R
Maximum Queue (ft)	114	87	30	2	49	6
Average Queue (ft)	49	39	3	0	15	0
95th Queue (ft)	91	68	19	2	41	3
Link Distance (ft)	571	382	281	281	310	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						150
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 185



Source: VDOT Road Design Manual, Appendix F

VDOT RIGHT TURN LANE WARRANT
SOUTHBOUND IRONBOUND ROAD AT CUL-DE-SAC
2023 PEAK HOUR FORECAST WITH PROPOSED SUP

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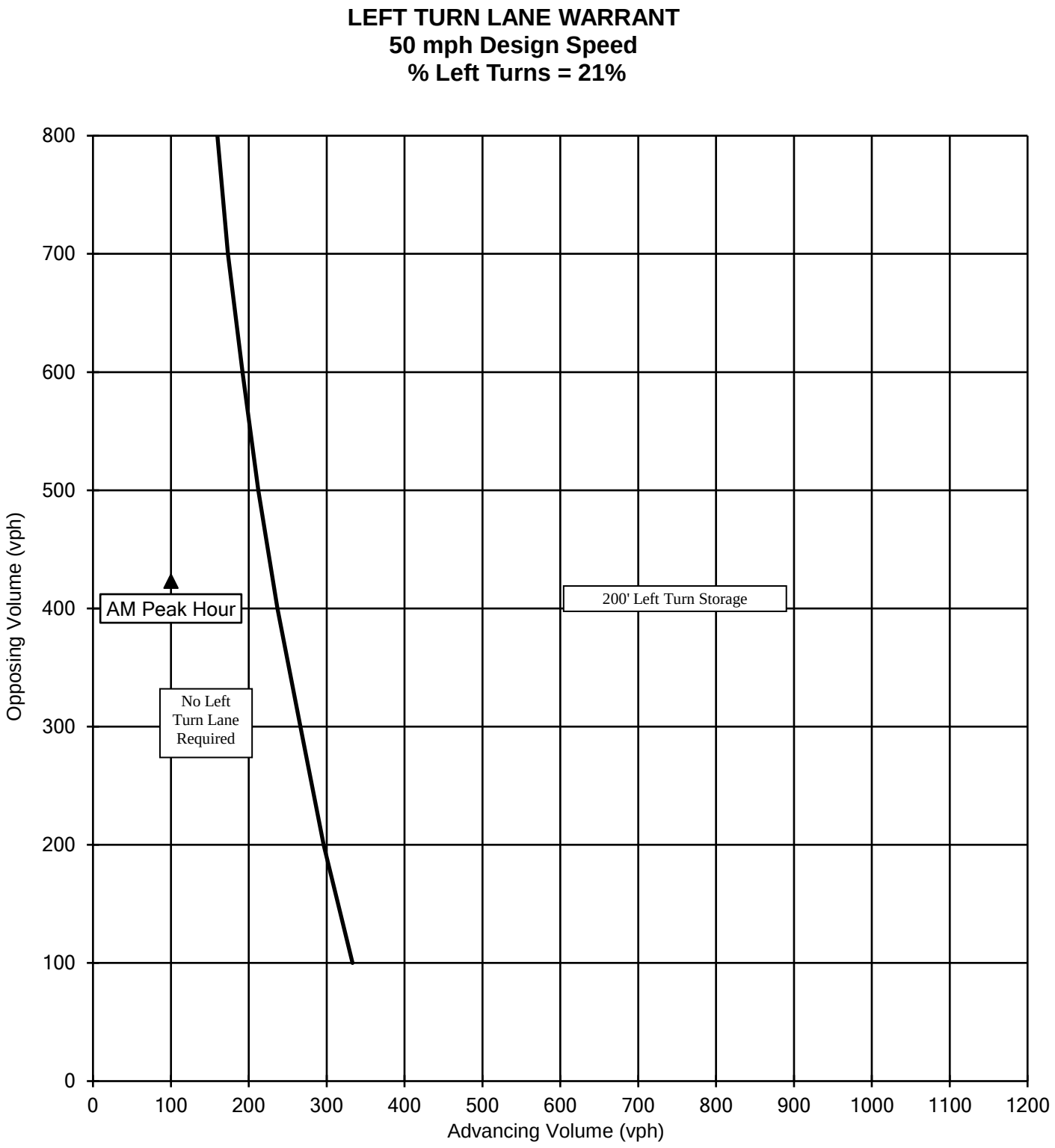
804-794-7312

Exhibit M1



Source: Interpolated from VDOT Road Design Manual, Appendix C, derived from Highway Research Record Number 211

VDOT LEFT TURN LANE WARRANTS
NB LEFT TURN IRONBOUND ROAD AT CUL-DE-SAC
2023 AM PEAK HOUR WITH PROPOSED SUP

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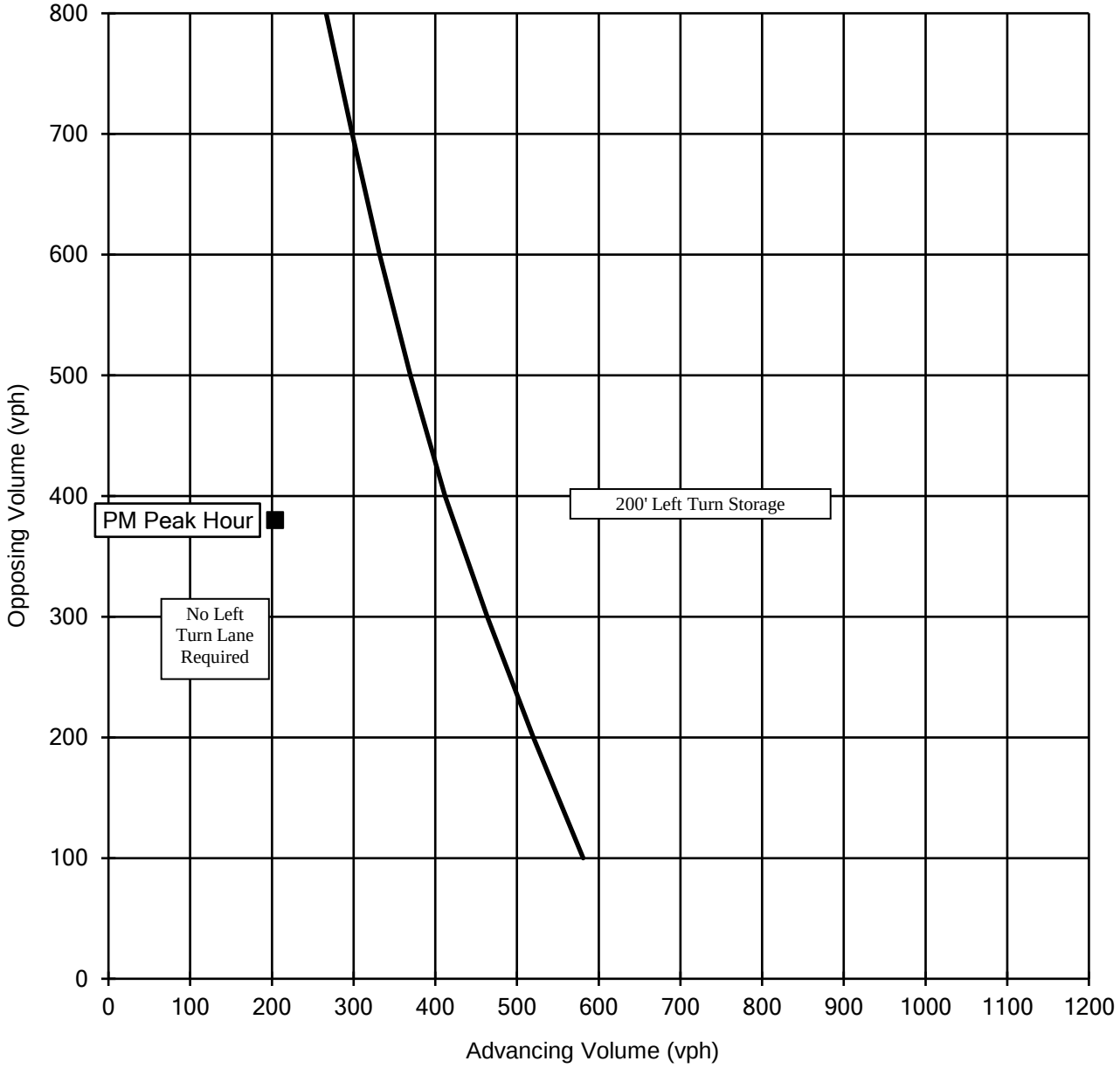
804-794-7312

Exhibit M2

LEFT TURN LANE WARRANT
50 mph Design Speed
% Left Turns = 6%



Source: Interpolated from VDOT Road Design Manual, Appendix F

VDOT LEFT TURN LANE WARRANTS
NB LEFT TURN IRONBOUND ROAD AT CUL-DE-SAC
2023 PM PEAK HOUR WITH PROPOSED SUP

DRW Consultants, LLC
804-794-7312

Exhibit M3

TO: Paul Holt, JCC Planning
FROM: Dexter R. Williams, P. E.
SUBJECT: TIA Workscope For Ironbound Crossing

- Data Collection, 2021 COVID Calibration, Background Traffic
- Traffic Analysis Scenarios And Product

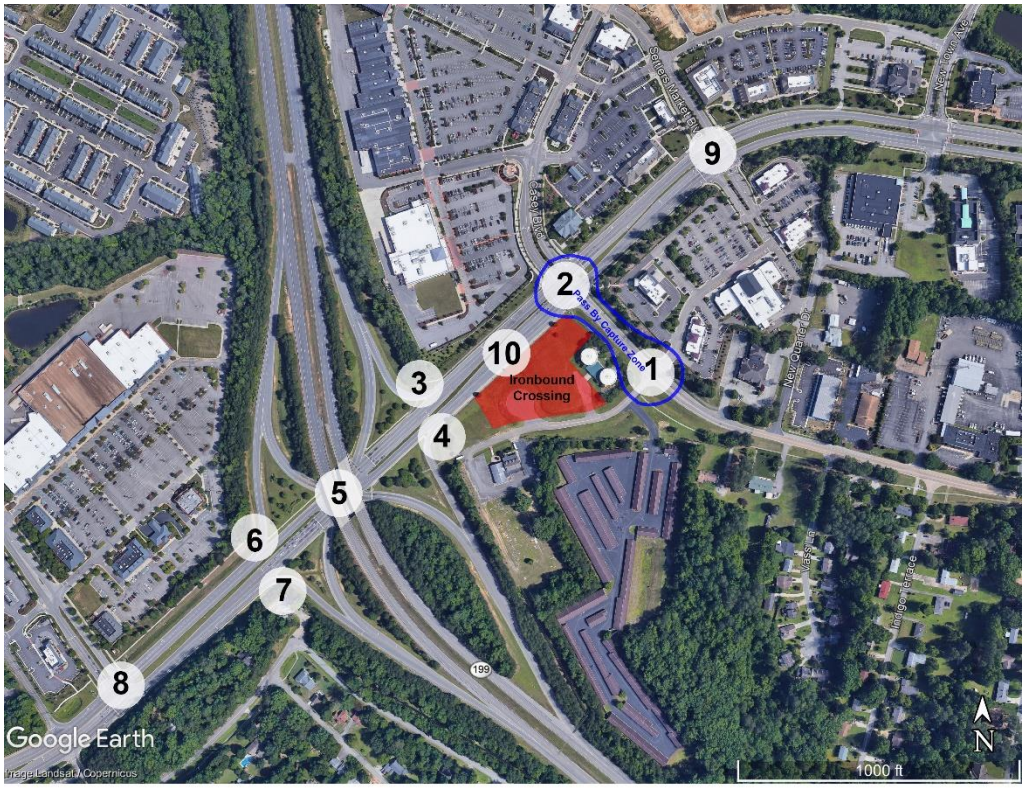
DATE: May 4, 2021

The following is my intended scope to develop 2021 COVID adjusted traffic and 2023 background traffic.

DATA COLLECTION, COVID CALIBRATION AND BACKGROUND TRAFFIC

7 to 9 AM and 4 to 6 PM turning movements counts will be conducted at the nine locations shown on Figure 1:

Figure 1: Peak Hour Count Locations



Following is an explanation of selected count locations:

1. Rt. 615 Ironbound Road/Rt. 784 Ironbound Road stub/Courthouse Commons Entrance. The Rt. 784 Ironbound Road stub provides access to the Ironbound Crossing site. 2017

pre-COVID count at this intersection will be increased to 2021 non-COVID count based on linear regression of five-year VDOT daily traffic counts pre-COVID.

2. Monticello Avenue/Ironbound Road/Casey Boulevard. This signalized intersection connects the site and Ironbound Road to the regional road network. There are no known pre-COVID counts at this intersection less than 10 years old at this intersection. The new COVID era 2021 counts at this intersection will be calibrated to non-COVID 2021 counts based on pre-COVID and COVID comparisons at intersections 1 and 5 through 8.
3. Westbound Monticello Avenue ramp to northbound Rt. 199. There are no known pre-COVID counts at this intersection less than 10 years old at this intersection. The new COVID era 2021 counts at this intersection will be calibrated to non-COVID 2021 counts based on pre-COVID and COVID comparisons at intersections 1 and 5 through 8.
4. Northbound Rt. 199 ramp to eastbound Monticello Avenue. There are no known pre-COVID counts at this intersection less than 10 years old at this intersection. The new COVID era 2021 counts at this intersection will be calibrated to non-COVID 2021 counts based on pre-COVID and COVID comparisons at intersections 1 and 5 through 8.
5. Monticello Avenue/ramps to and from Rt. 199 north and south signalized intersection. This intersection was counted in November 2016 for the Monticello Commons site (TIA by Ramey Kemp dated October 2017). 2016 pre-COVID count at this intersection will be increased to 2021 non-COVID count based on linear regression of five-year VDOT daily traffic counts pre-COVID.
6. Southbound Rt. 199 ramp to westbound Monticello Avenue. This intersection was counted in November 2016 for the Monticello Commons site (TIA by Ramey Kemp dated October 2017). 2016 pre-COVID count at this intersection will be increased to 2021 non-COVID count based on linear regression of five-year VDOT daily traffic counts pre-COVID.
7. Eastbound Monticello Avenue ramp to southbound Rt. 199. This intersection was counted in November 2016 for the Monticello Commons site (TIA by Ramey Kemp dated October 2017). 2016 pre-COVID count at this intersection will be increased to 2021 non-COVID count based on linear regression of five-year VDOT daily traffic counts pre-COVID.
8. Monticello Avenue/WindsorMeade Way. This intersection was counted in November 2016 for the Monticello Commons site (TIA by Ramey Kemp dated October 2017). 2016 pre-COVID count at this intersection will be increased to 2021 non-COVID count based on linear regression of five-year VDOT daily traffic counts pre-COVID.
9. Monticello Avenue/Settler's Market Boulevard/Courthouse Commons. There are no known pre-COVID counts at this intersection less than 10 years old at this intersection. The new COVID-19 era counts at this intersection will be calibrated to non-COVID 2021 counts based on pre-COVID and COVID comparisons at intersections 1 and 5 through 8.
10. Eastbound Monticello Avenue weave from Rt. 199 northbound exit ramp to left turn on Monticello at Casey Boulevard. There are no known pre-COVID counts weave. The new COVID-19 era counts at this intersection will be calibrated to non-COVID 2021 counts based on pre-COVID and COVID comparisons at intersections 1 and 5 through 8.

To summarize, new counts will be conducted at intersections 1, 2, 3, 4, 5 and 9 and weave 10.

Calibration will include determining pre-COVID-19 background traffic growth rates from last five years of VDOT daily counts. Previous counts will be increased by growth rate to 2021 at intersections 1 and 5 through 8. Counts at intersections 2, 3, 4 and 9 will be increased commensurate with increase at intersections 1 and 5 from current COVID-19 era counts to pre-COVID-19 counts with background growth factors to provide uniform, balanced 2021 counts adjusted for COVID. 2021 adjusted background traffic will be forecast to the 2023 design year using growth rate derived from last five years of VDOT pre-COVID data.

The traffic counts, COVID adjustments, adjusted 2021 counts 2023 background traffic forecast will be provided to JCC/VDOT for review before proceeding with study.

TRAFFIC ANALYSIS SCENARIOS AND PRODUCT

There are three traffic analysis scenarios:

1. Existing counts calibrated to pre-COVID levels.
2. 2023 background traffic with site as zoned (99 peak hour trips in AM and PM) for 2023 forecast as zoned.
3. 2023 with site as proposed. Proposed site trips assigned to network and added to 2023 background traffic for 2023 forecast as proposed.

Synchro intersection LOS reports and SimTraffic queuing reports will be generated for AM and PM peak hours of the three analysis for all intersections. Analysis will only be reported for all scenarios for intersections 1, 2 and 5 and weave 10. In particular, queuing at intersection 2 on northbound Ironbound Road at Monticello Avenue and on westbound Monticello at Ironbound Road will be addressed for storage adequacy. General VDOT TOSAM v2.0 criteria will be used (e.g., turn lane storage length measurement, peak hour factors) will be used.

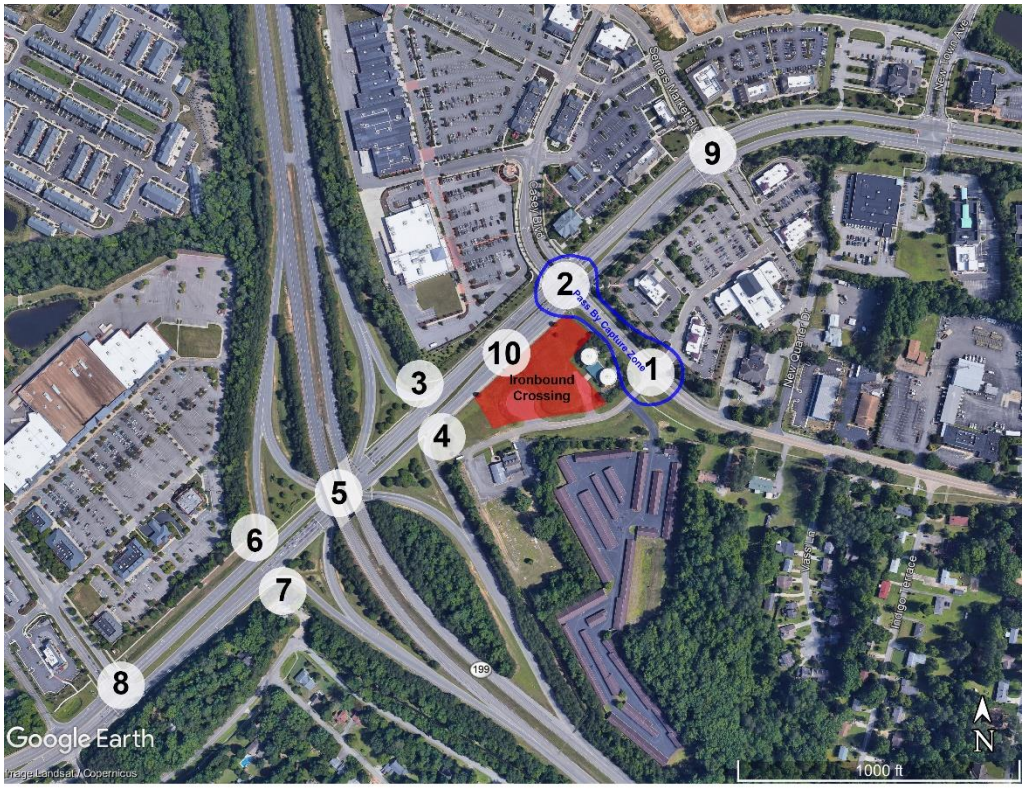
DRW Consultants, LLC

Traffic Impact Studies
Development Access
Condemnation Damages

TO: Paul Holt, JCC Planning
FROM: Dexter R. Williams, P. E.
SUBJECT: Ironbound Crossing Traffic Counts & COVID Calibration
DATE: June 15, 2021

This memo and enclosed exhibits are provided for JCC and VDOT review of traffic counts, balancing of traffic counts, and calibration of traffic counts for COVID conditions for the Ironbound Crossing traffic study. For reference, the location of various count sources from my May 4, 2021 memo is shown below:

Figure 1: Peak Hour Count Locations



After further research into previously discussed traffic count and analysis assumptions, two inconsistencies with previous assumptions have emerged.

The first inconsistency has to do with using the counts from the October 2017 Monticello Commons site TIA by Ramey Kemp. The Monticello Commons TIA did not include AM peak hour counts and analysis and data is not available for locations 5, 6 and 7 in the AM peak hour. This is an obviously deliberate omission particularly given that the study was part of a limited

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access break request that requires a global traffic study. AM peak hour traffic for the Monticello Commons (150 vehicle trips) is actually greater than PM peak hour (144 vehicle trips), so exclusion of AM peak hour traffic is based on less site traffic in the AM peak hour. One legitimate basis for excluding AM peak hour counts and analysis is the demonstrably lower traffic in the AM peak vs. the PM peak hour on the Monticello Avenue corridor. As shown on enclosed Exhibit 10 for Monticello Avenue between Rt. 199 and Casey Blvd/Ironbound Road, the AM peak hour has 1,759 vehicle per hour (vph) in both directions, and the PM peak hour has 3,092 vph. AM peak hour traffic is only 57% of PM peak hour traffic. Given the Monticello Commons precedent and the demonstrated low level of traffic on Monticello Avenue in the AM peak hour, I recommend the that the AM peak hour be removed from further study on for consistency with recent TIA and a lack of any practical need or benefit.

The second inconsistency involve the assumption of a weave on eastbound Monticello between Rt. 199 and Casey Boulevard/Ironbound Road (see 10 on Figure 1). Peggy Malone & Assc. advised that the spacing for the presumed weave is too short to count. Furthermore, Highway Capacity Manual 6th Edition, Chapter 13, Freeway Weaving Segments, page 13-30, states:

MULTILANE HIGHWAYS

Weaving segments may occur on multilane highways. As long as such segments are a sufficient distance away from signalized intersections—so that platoon movements are not an issue—the methodology of this chapter may be approximately applied.

This assumed weaving segment on Monticello Avenue is literally within the functional area of the approach to the traffic signal at Casey Boulevard/Ironbound Road, and thus is zero distance functionally from the signalized intersection. In addition, Monticello Avenue is very much an interrupted flow corridor with the vast majority of traffic regulated by platooning movements. I recommend that the mistakenly identified weaving analysis for location 10 on Figure 1 be removed from the study because it is a clear contradiction of professional standards and State regulations.

2021 PEAK HOUR COUNTS

2021 peak hour traffic counts are tabulated on Appendix Exhibits as follows:

- Location 1, Rt. 615 Ironbound Road/Rt. 784 Ironbound Road stub/Courthouse Commons Entrance – Appendix Exhibit A series. April 13, 2021.
- Location 2, Monticello Avenue/Ironbound Road/Casey Boulevard – Appendix Exhibit B series. April 13, 2021.
- Locations 3 and 4, Westbound Monticello Avenue ramp to northbound Rt. 199 and Northbound Rt. 199 ramp to eastbound Monticello Avenue – Appendix Exhibit C series.
- Location 5, Monticello Avenue/ramps to and from Rt. 199 north and south at signalized intersection – Appendix Exhibit D series. April 13, 2021.
- Location 9, Monticello Avenue/Settler's Market Boulevard/Courthouse Commons – Appendix Exhibit E series. May 19, 2021.

Total vehicle counts are shown for the AM peak hour on page 4 of each series and for the PM peak hour on Page 8 of each series.

Enclosed Exhibit 3 shows the 2021 AM and PM peak hour counts on the analysis road network. The April 13 counts (in yellow) are close to balance between intersections, but the May 19 counts (in green) are higher than the April 13 counts, particularly for the PM peak hour. Ratios of May 19 counts to April 13 counts on Monticello Avenue are:

- AM westbound: 1.06
- AM eastbound: 1.02
- PM westbound: 1.09
- PM eastbound: 1.13

Growth factors for increasing April 13 counts to May 19 levels are shown Exhibit 3a. For the AM peak hour, growth factors range from 1.01 to 1.06. For the PM peak hour, growth factors range from 1.09 to 1.13.

Exhibit 4 shows 2021 counts balanced with the April 13 counts increased to May 19 levels.

DAILY TRAFFIC TRENDS

Exhibits 5 and 6 show VDOT daily traffic counts for the last ten published years and trends for Monticello and Ironbound Roads as follows:

- Exhibit 5, upper section: Monticello Avenue from Rt. 199 to News Road. The 2010 and 2011 counts are statistical anomalies and are not used in the trend forecast. There is an increasing trend overall based on 2012 through 2019 counts, with the following growth factors:
    - 2012 to 2019: 1.05
    - 2016 to 2021: 1.04
    - 2017 to 2021: 1.03
    - 2021 to 2023: 1.01
- Exhibit 5, lower section: Monticello Avenue from Ironbound Road to Compton Drive (east of New Town through College Woods). The counts here show a declining trend and don't provide guidance for growth factors.
- Exhibit 6, upper section: Monticello Avenue from Rt. 199 to Ironbound Road. These counts show that the count location must have changed over time. There is no historical change in traffic demand in the area to increase daily traffic from 23,000 in 2015 to 32,000 in 2016. The two sets of count here show a declining trend and don't provide guidance for growth factors.
- Exhibit 6, lower section: Ironbound Road from Monticello Avenue to Strawberry Plains Road (Old Ironbound Road including access to Ironbound Stub and proposed site). These counts show that count location may have changed over time or may be just an anomaly of data collection. Using all of the counts, there is an increasing trend overall, with the following growth factors:
    - 2012 to 2019: 1.10
    - 2016 to 2021: 1.05

- 2017 to 2021: 1.04
- 2021 to 2023: 1.02

2021 COVID ADJUSTED COUNTS

As discussed, previous counts at location 1 (Ironbound Road/Ironbound Stub/Courthouse Commons) from 2017 and at location 5 (Monticello Avenue/Rt. 199 ramps signalized intersection) from 2016 are used to calibrate current counts with pre-COVID conditions.

Exhibit 7 shows COVID count calibration for location 1 (Ironbound Road/Ironbound Stub/Courthouse Commons) as follows:

- Top row: 2017 peak hour counts.
- Second row: 2021 calibration: 2017 counts increased by 1.04 factor to 2021 levels.
- Third row: balanced counts from Exhibit 4.
- Fourth row: ratio of 2021 balanced counts to 2021 COVID calibration from 2017 counts.

The AM peak hour shows that the 2021 balanced counts are greater than the calibration counts from 2017 by a 1.22 ratio (22% greater). Much of this increase is driven by traffic on the Ironbound Stub (activity at Mt. Pleasant Baptist Church) and the Courthouse Commons entrance.

The PM peak hour shows that the 2021 balanced counts are less than the calibration counts from 2017 by a 0.91 ratio (9% less). Much of this decrease is driven by traffic on the Courthouse Commons entrance.

Exhibit 8 shows COVID count calibration for locations 5 through 8 (Monticello Avenue from Rt. 199 Ramp signal to WindsorMeade Way) as follows:

- Top row: 2016 peak hour counts.
- Second row: 2021 calibration: 2016 counts increased by 1.05 factor to 2021 levels.
- Third row: balanced counts from Exhibit 4. Only corresponding counts to the 2016 counts area shown (six turning movements) at the Rt. 199 signal. No 2021 counts were done at WindsorMeade Way.
- Fourth row: ratio of 2021 balanced counts to 2021 COVID calibration from 2016 counts.

The PM peak hour shows that the 2021 balanced counts for six movements at Rt. 199/Monticello Avenue are less than the calibration counts from 2017 by a 0.92 ratio (8% less). This 0.92 ratio is consistent with the 0.91 ratio for location 1 (Ironbound Road/Ironbound Stub/Courthouse Commons).

2021 COUNTS WITH COVID ADJUSTMENT

Exhibit 9 shows the first adjustment to 2021 PM peak hour counts to account for COVID as follows:

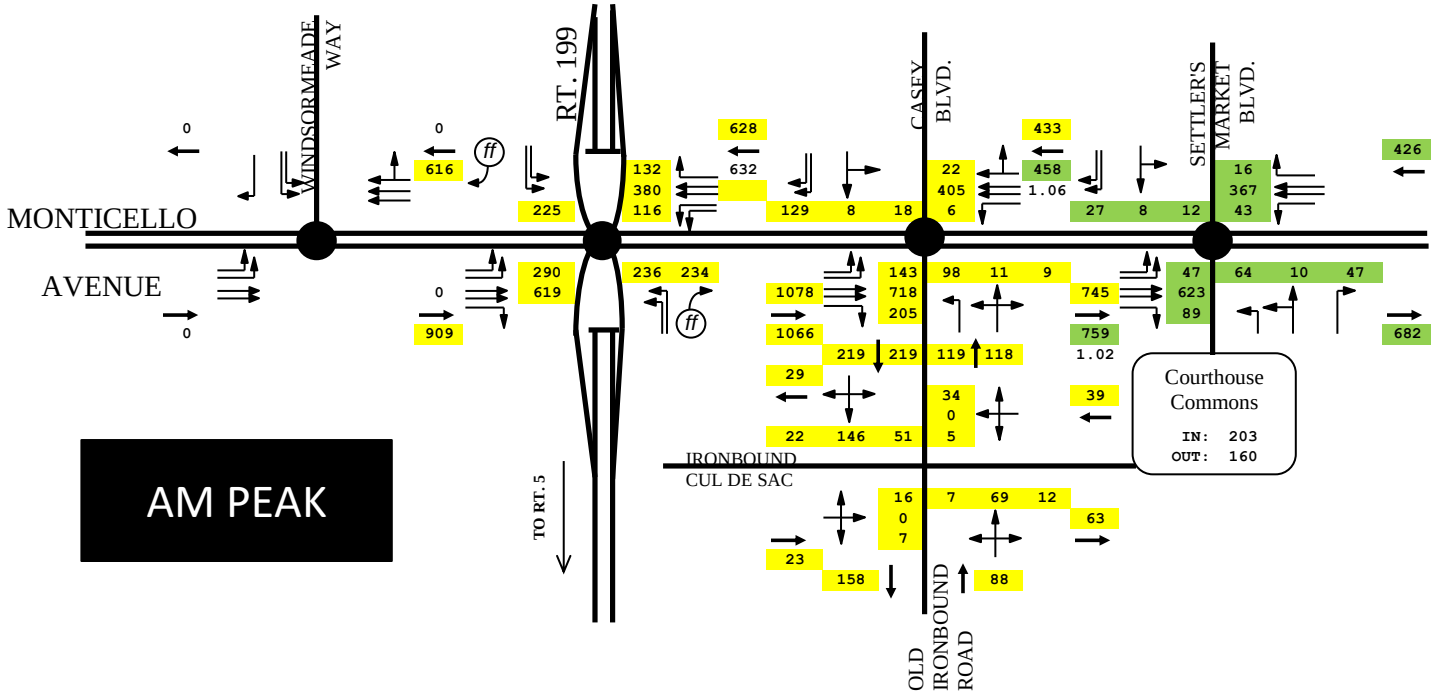
- For locations 1 (Ironbound Road/Ironbound Stub/Courthouse Commons) and 5 (Rt.

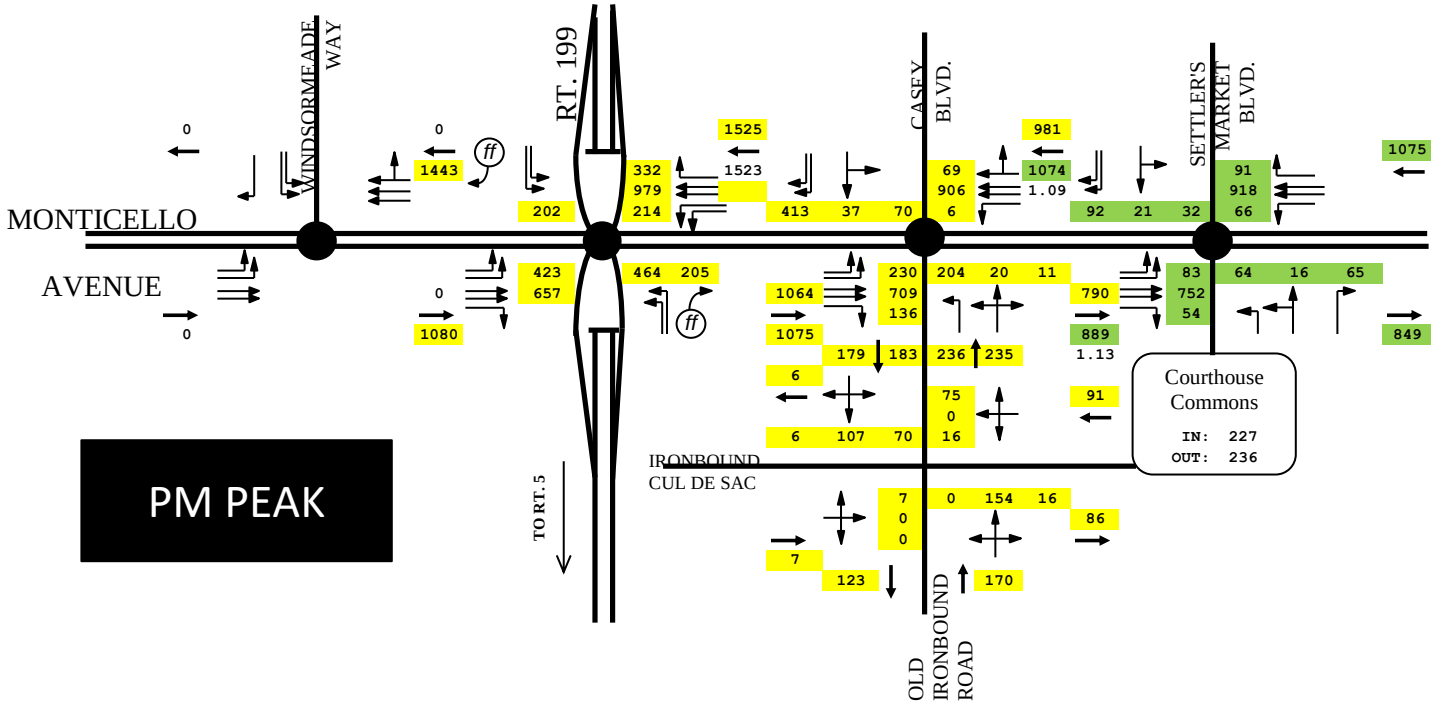
199/Monticello Avenue signal), the higher values from the 2016/2017 counts calibrated to 2021 are substituted to 2021 balanced counts (in yellow).

- For the movements west of the Rt. 199/Monticello signal (Rt. 199 ramps and WindsorMeade Way), the 2016 counts calibrated to 2021 are added.

Exhibit 10 shows the final adjustment to 2021 PM peak hour counts: all movements on Monticello Avenue at Casey Blvd./Ironbound Road and at Settler's Market/Courthouse Commons (yellow) are increased to balance with COVID calibration counts.

2021 AM counts are unadjusted because the only pre-COVID counts at location 1 (Ironbound Road/Ironbound Stub/Courthouse Commons are smaller than the 2021 counts.





APRIL 13, 2021 PEAK HOUR COUNTS (YELLOW)
AND MAY 19, 2021 COUNTS (GREEN)
8 AM TO 9 AM, 4 PM TO 5 PM
WITHOUT BALANCE

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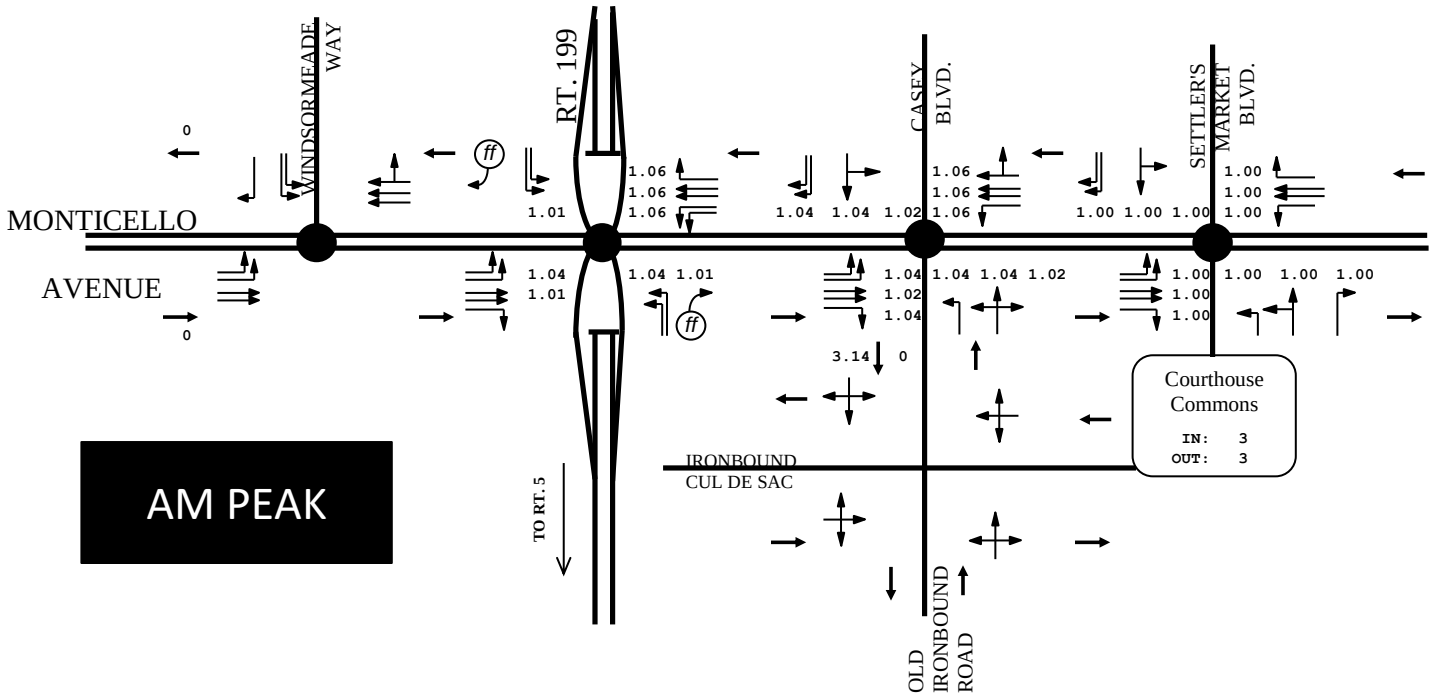
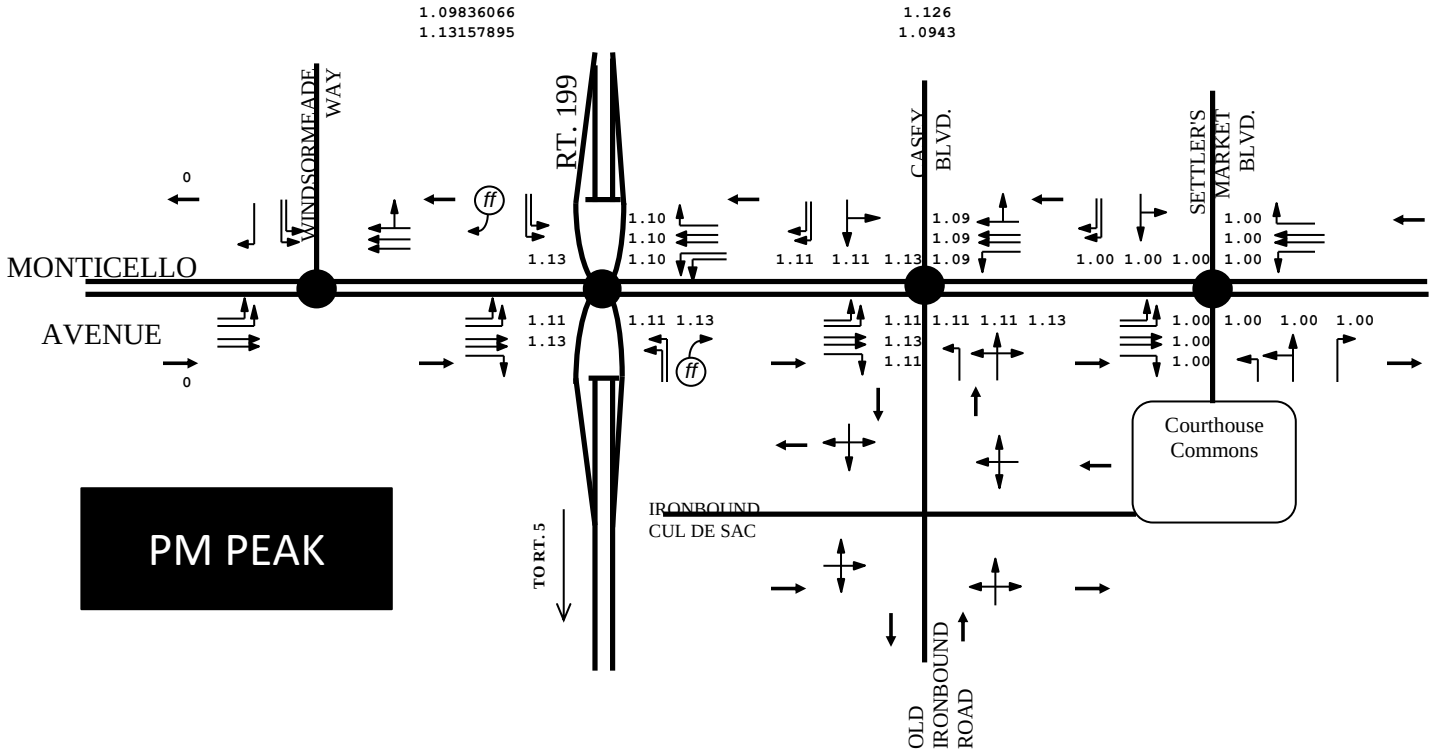
Exhibit 3





APRIL 13, 2021 PEAK HOUR COUNTS/MAY 19, 2021 COUNTS
8 AM TO 9 AM, 4 PM TO 5 PM
ADJUSTMENT FACTORS FOR BALANCE

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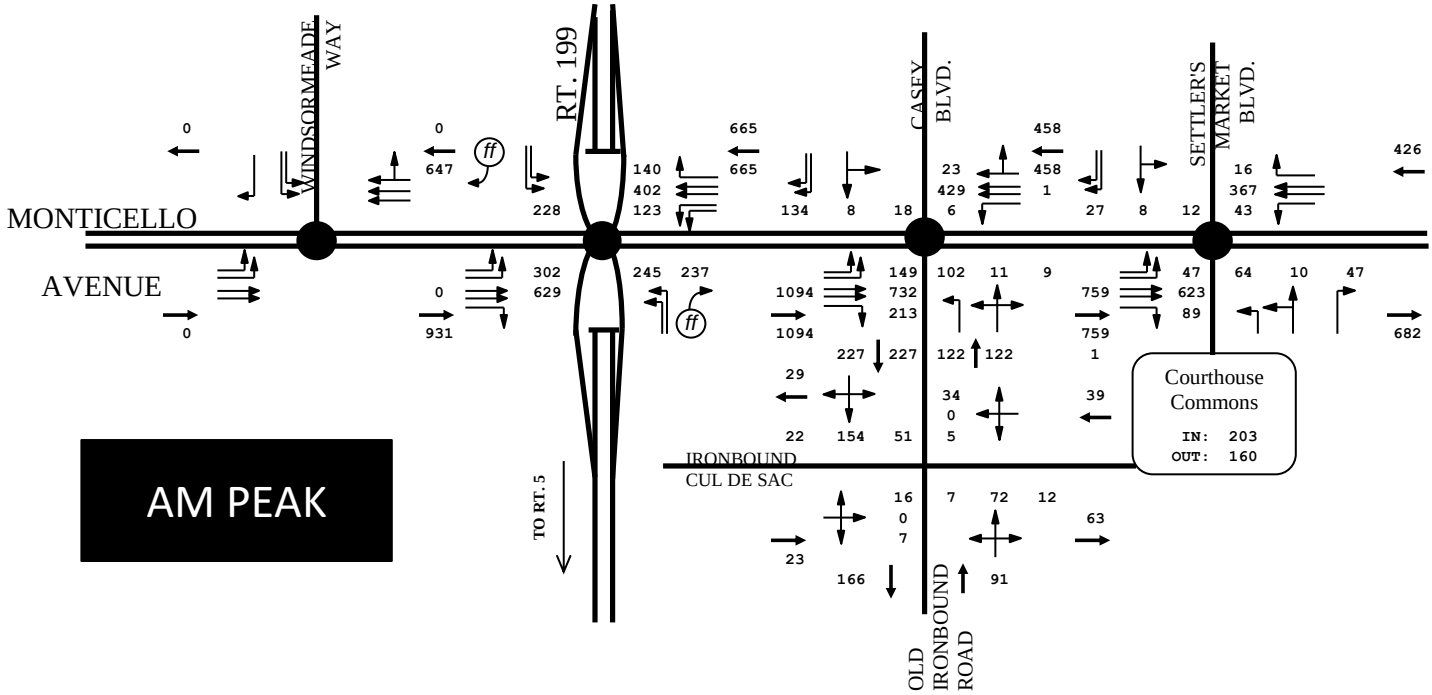
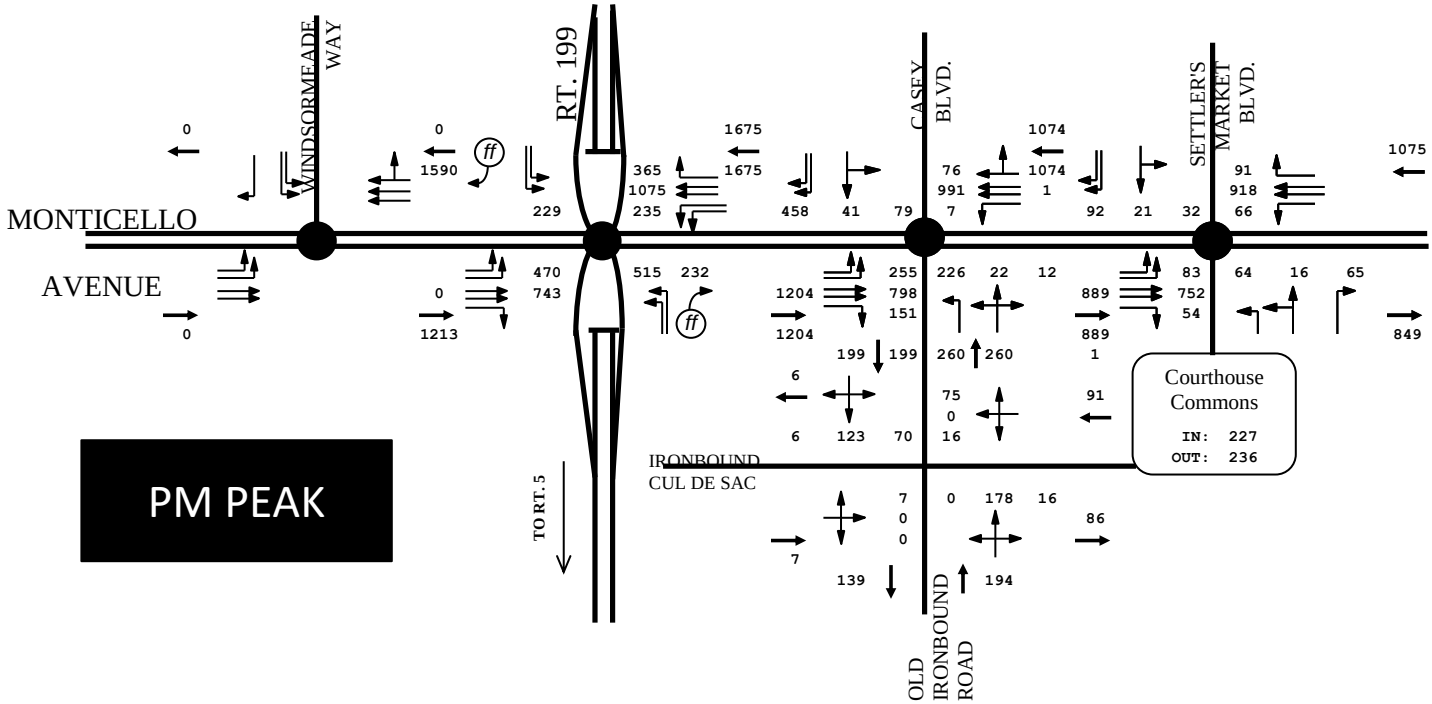
804-794-7312

Exhibit 3a





APRIL 13, 2021 PEAK HOUR COUNTS/MAY 19, 2021 COUNTS
8 AM TO 9 AM, 4 PM TO 5 PM
WITH BALANCE

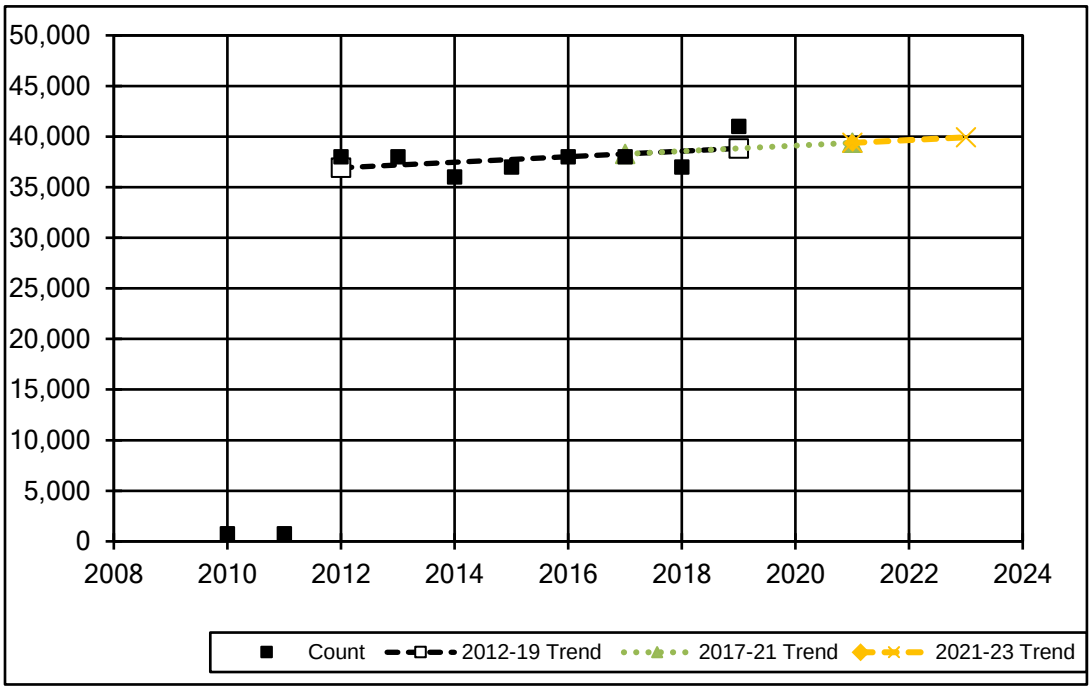
DRW Consultants, LLC
804-794-7312

Exhibit 4

Street: Rt. 5000 Monticello Avenue
From: Rt. 199
To: News Road

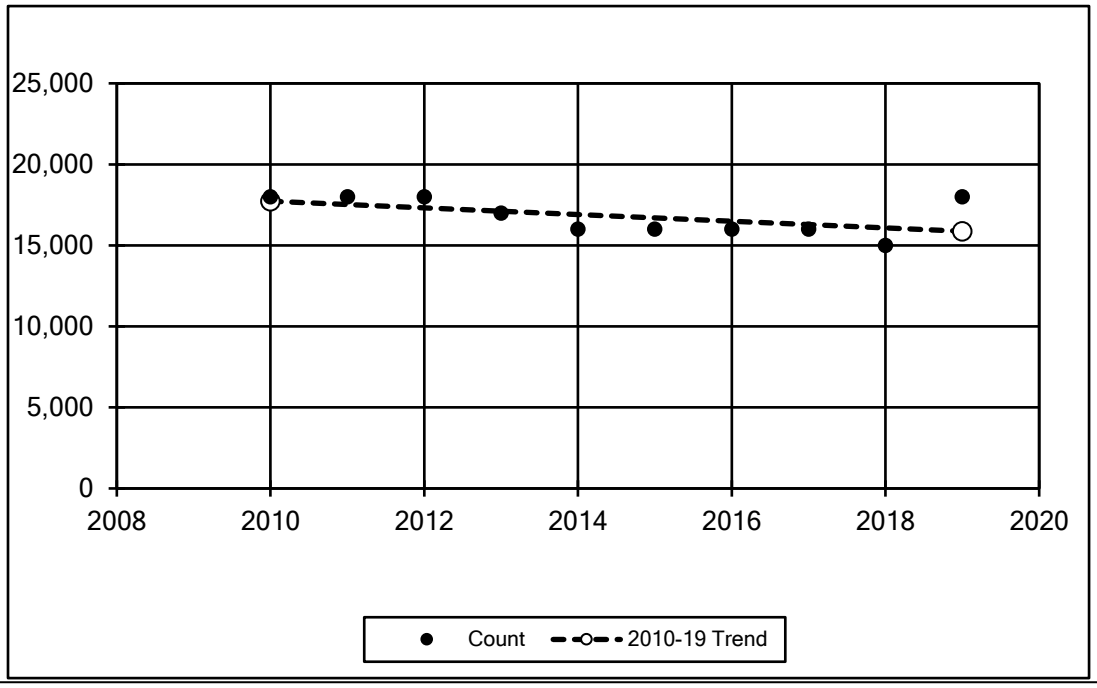
Year	2016-21 Trend	
2016	38,012	Δ16
2021	39,381	1.04

Year	Count	
2010	750	
2011	750	
2012	38,000	
2013	38,000	
2014	36,000	
2015	37,000	
2016	38,000	
2017	38,000	
2018	37,000	
2019	41,000	
Year	2012-19 Trend	
2012	36,917	Δ12
2019	38,833	1.05
Year	2017-21 Trend	
2017	38,286	Δ17
2021	39,381	1.03
Year	2021-23 Trend	
2021	39,381	Δ21
2023	39,929	1.01



Street: Rt. 321 Monticello Avenue
From: Ironbound Road
To: Compton Dr.

Year	Count	
2010	18,000	
2011	18,000	
2012	18,000	
2013	17,000	
2014	16,000	
2015	16,000	
2016	16,000	
2017	16,000	
2018	15,000	
2019	18,000	
Year	2010-19 Trend	
2010	17,727	Δ10
2019	15,873	0.90



VDOT Average Annual Daily Traffic (AADT) Volume Estimates

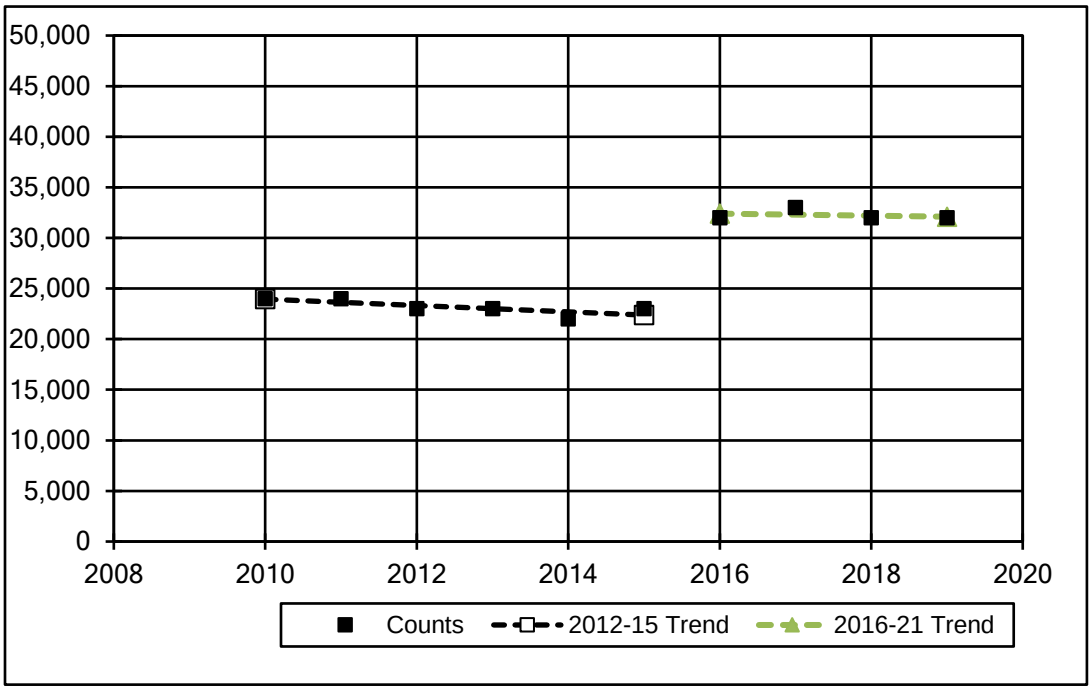
MONTICELLO AVENUE
DAILY TRAFFIC COUNTS AND TRENDS

DRW Consultants, LLC
804-794-7312

Exhibit 5

Street: Rt. 321 Monticello Avenue
From: Rt. 199
To: Ironbound Road

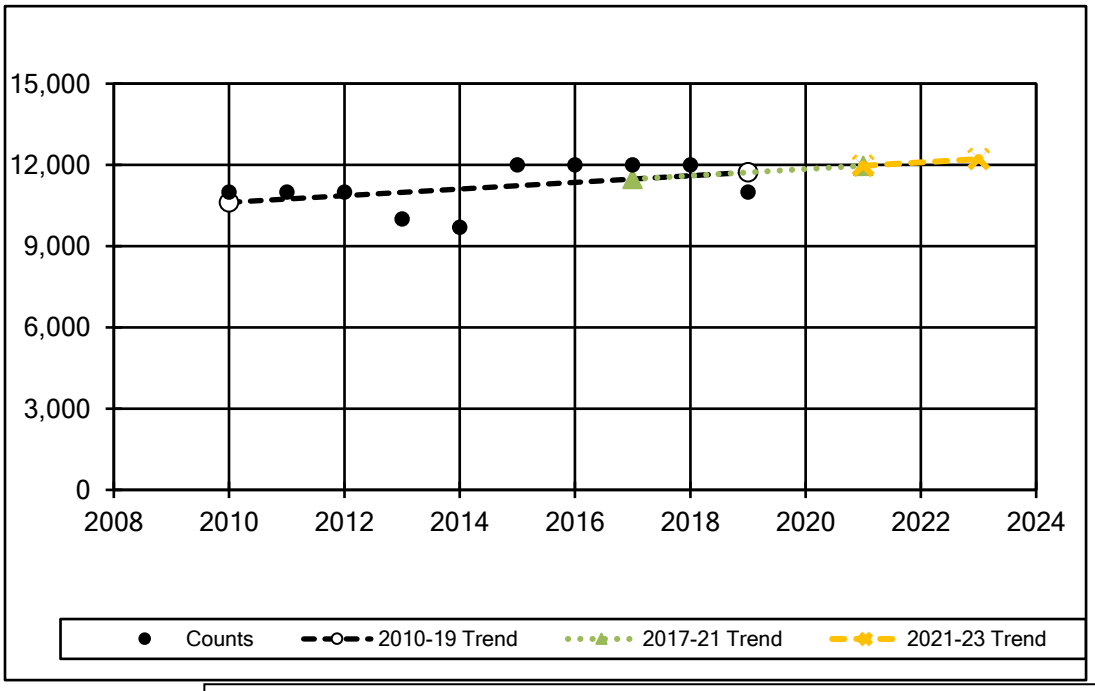
Year	Counts	
2010	24,000	
2011	24,000	
2012	23,000	
2013	23,000	
2014	22,000	
2015	23,000	
2016	32,000	
2017	33,000	
2018	32,000	
2019	32,000	
Year	2012-15 Trend	
2010	23,952	Δ10
2015	22,381	0.93
Year	2017-21 Trend	
2016	32,400	Δ16
2019	32,100	0.99



Street: Rt. 615 Ironbound Road
From: Rt. 321 Monticello Avenue
To: Rt. 616 Strawberry Plains Road

Year	2016-21 Trend	
2016	11,355	Δ16
2021	11,970	1.05

Year	Counts	
2010	11,000	
2011	11,000	
2012	11,000	
2013	10,000	
2014	9,700	
2015	12,000	
2016	12,000	
2017	12,000	
2018	12,000	
2019	11,000	
Year	2010-19 Trend	
2010	10,616	Δ10
2019	11,724	1.10
Year	2017-21 Trend	
2017	11,478	Δ17
2021	11,970	1.04
Year	2021-23 Trend	
2021	11,970	Δ21
2023	12,216	1.02



VDOT Average Annual Daily Traffic (AADT) Volume Estimates

MONTICELLO AVENUE AND IRONBOUND ROAD
DAILY TRAFFIC COUNTS AND TRENDS

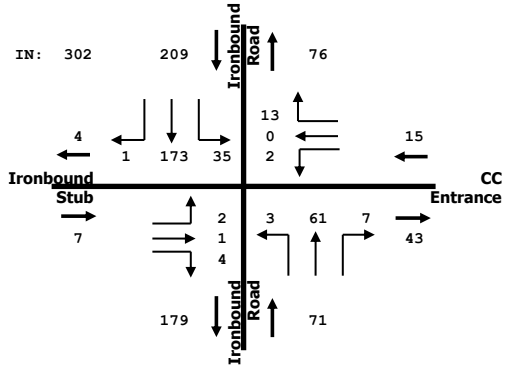
DRW Consultants, LLC
804-794-7312

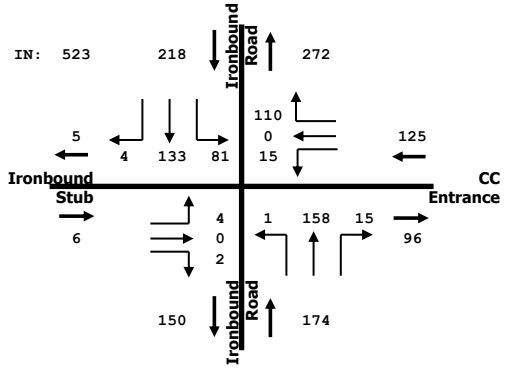
Exhibit 6

Ironbound Road
Ironbound Road
Ironbound Stub
CC Entrance

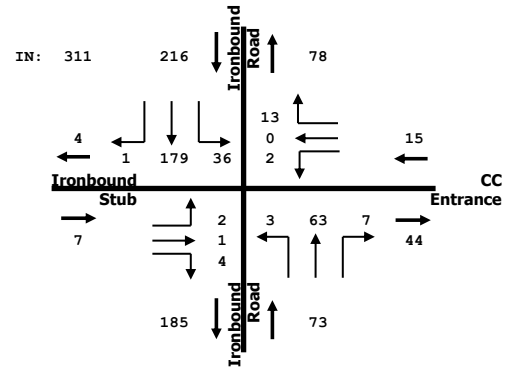
GROWTH FACTOR: 1.04

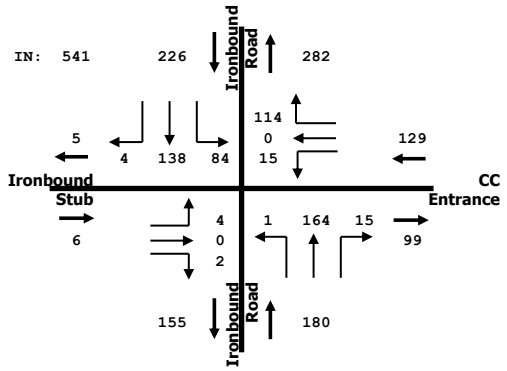
2017 Counts



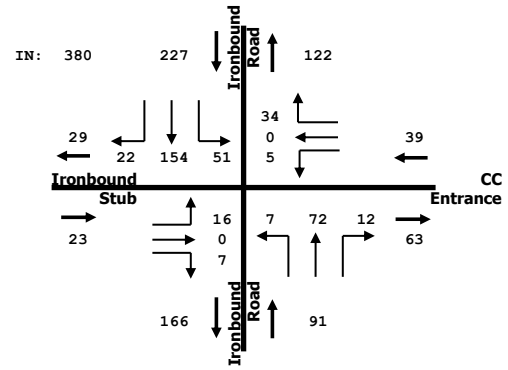


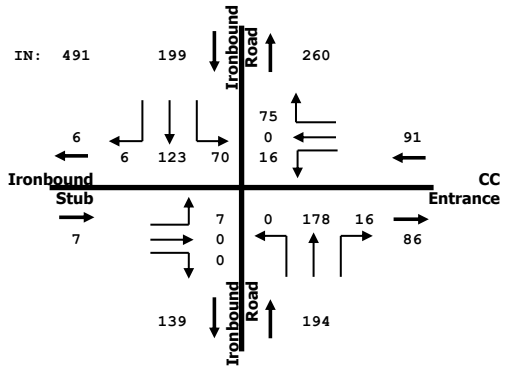
2021 Calibration (2017 Counts WIth Growth Factor)



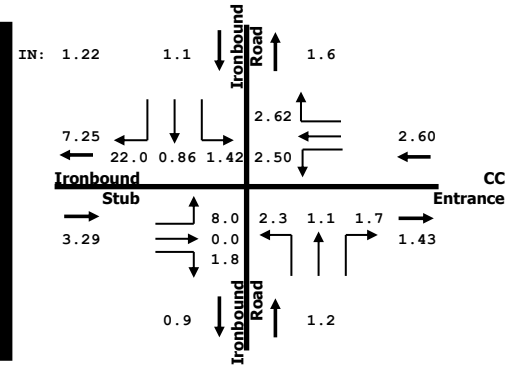


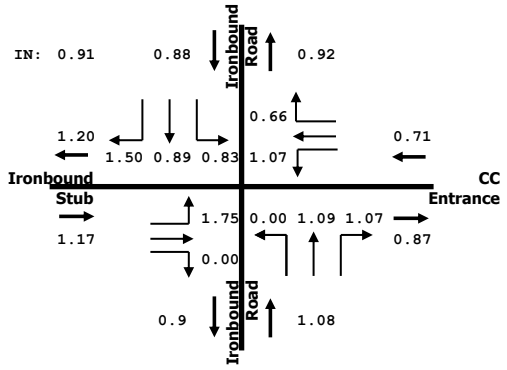
2021 Counts With Balance From





2021Balanced/2021 Calibration Comparison





N

Exhibit Reference

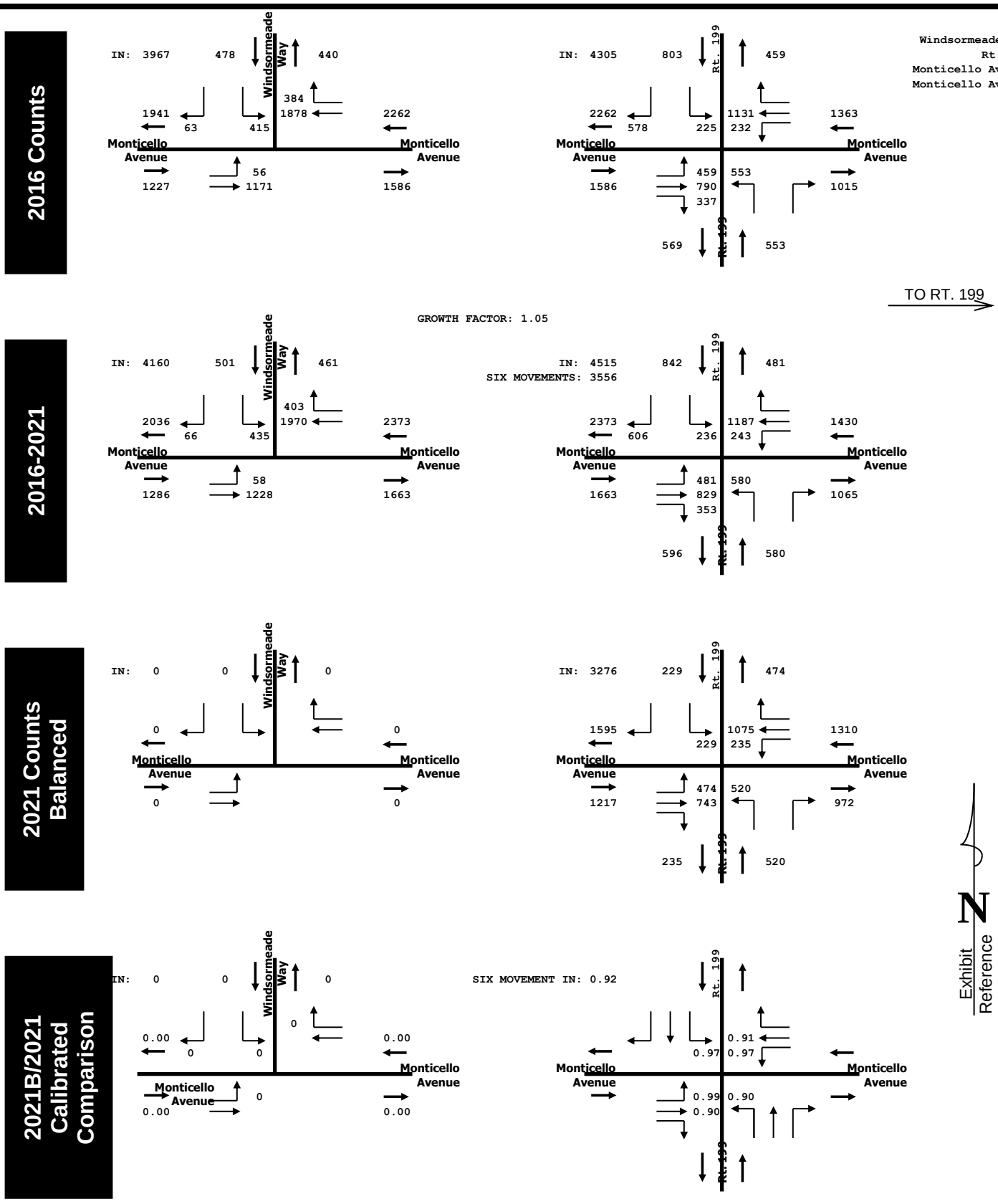
AM Peak Hour

PM Peak Hour

IRONBOUND ROAD INTERSECTION AT
IRONBOUND STUB/COURTHOUSE COMMONS ENTRANCE
2017 AND 2021 BALANCE TRAFFIC COUNTS, 2017-21 CALIBRATION
2021 COUNT TO CALIBRATION COMPARISON

DRW Consultants, LLC
804-794-7312

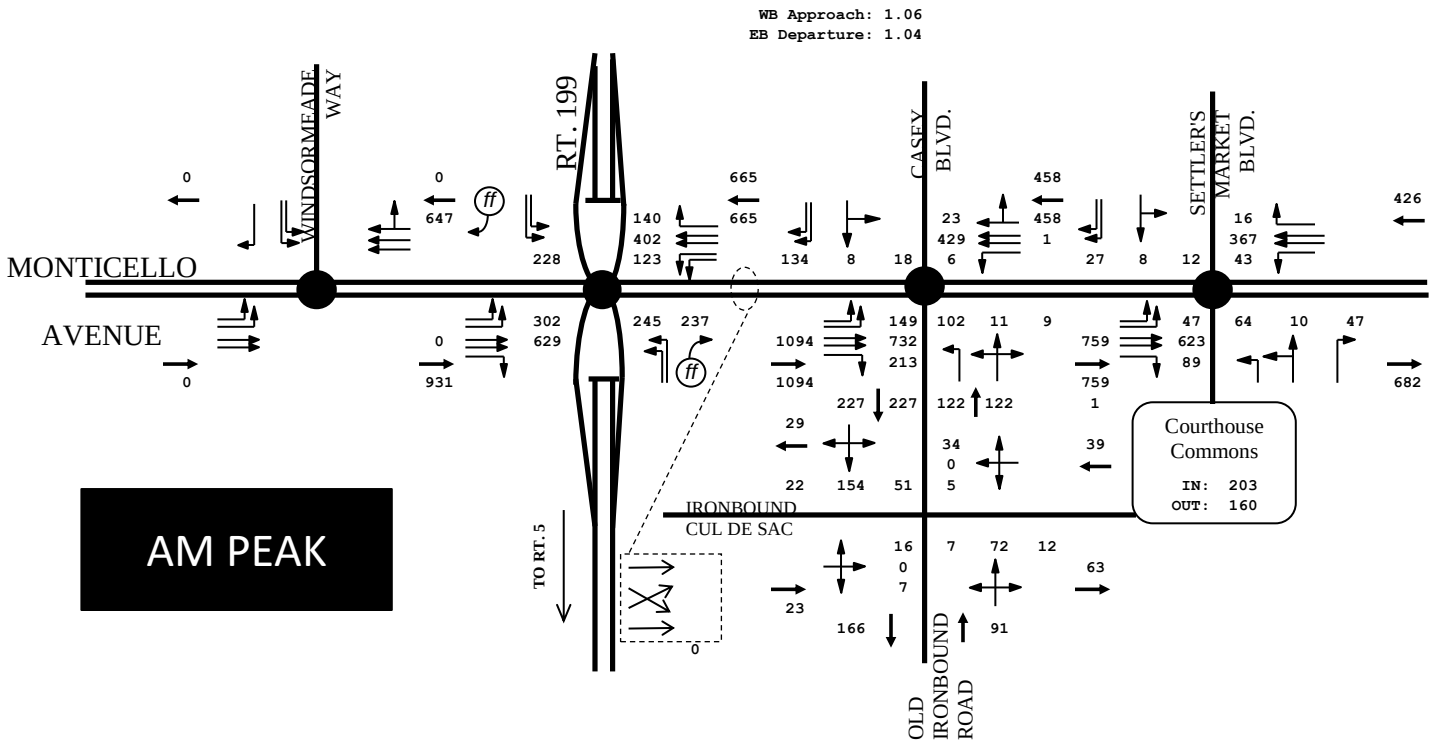
Exhibit 7

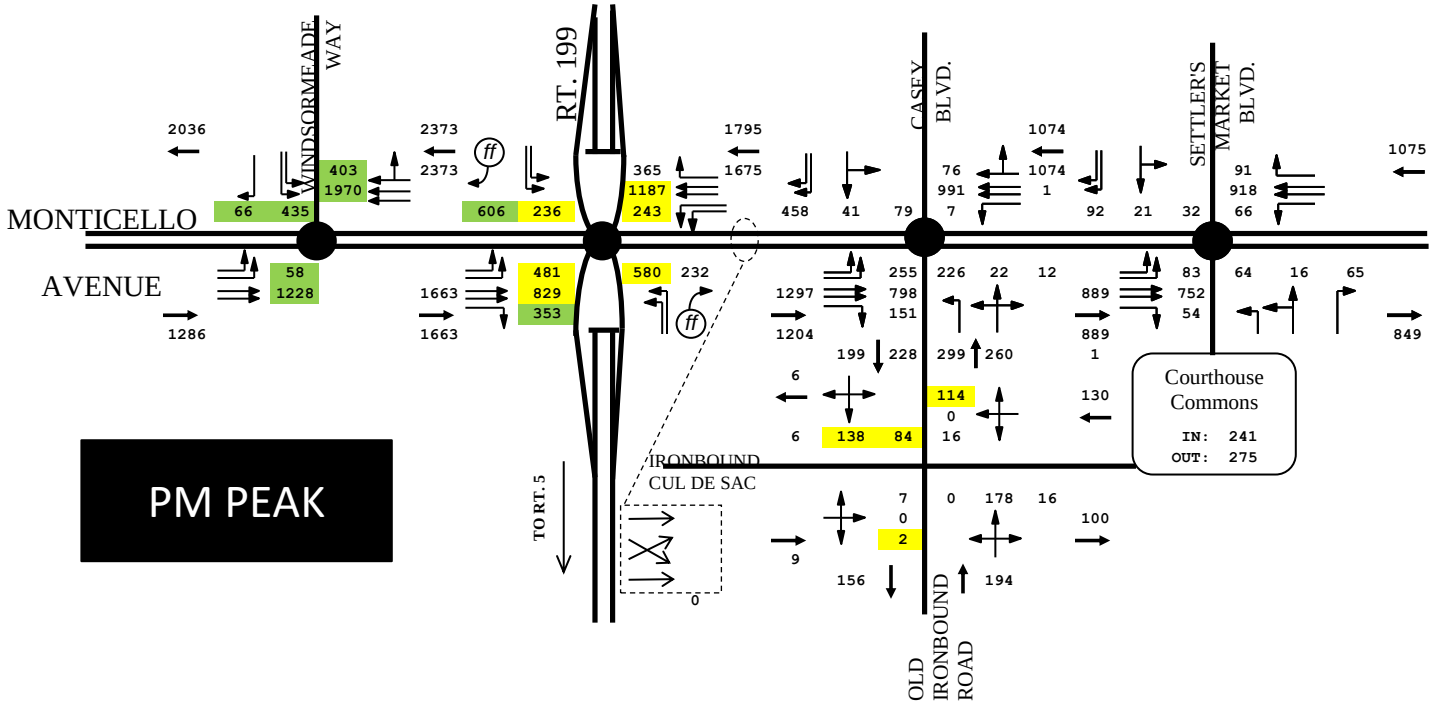


MONTICELLO AVENUE AT WINDSORMEADE WAY AND RT. 199
PM PEAK HOUR
2016 AND 2021 BALANCE TRAFFIC COUNTS, 2016-21 CALIBRATION
2021 COUNT TO CALIBRATION COMPARISON

DRW Consultants, LLC
804-794-7312

Exhibit 8





FIRST 2021 COUNT ADJUSTMENT:
1. SUBSTITUTION OF HIGHER 2016/2017 COUNTS INCREASED TO 2021 (YELLOW)
2, ADDITION OF 2016/2021 COUNTS AT WINDSORMEADE WAY/RT. 199 RAMPS

DRW Consultants, LLC
804-794-7312

Exhibit 9

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	1	0	1	0	2	1	13	3	0	17	5	20	2	0	27	46
07:15 AM	0	0	1	0	1	1	0	2	0	3	0	2	2	0	4	5	31	3	0	39	47
07:30 AM	1	0	0	0	1	0	0	2	0	2	3	11	2	0	16	4	33	2	0	39	58
07:45 AM	2	0	0	0	2	2	0	0	0	2	0	17	1	0	18	2	55	4	0	61	83
Total	3	0	1	0	4	4	0	5	0	9	4	43	8	0	55	16	139	11	0	166	234
08:00 AM	1	0	1	0	2	2	0	7	0	9	2	12	3	0	17	8	38	3	0	49	77
08:15 AM	4	0	3	0	7	0	0	6	0	6	1	15	3	0	19	15	36	7	0	58	90
08:30 AM	6	0	2	0	8	2	0	10	0	12	2	18	1	0	21	16	31	7	0	54	95
08:45 AM	4	0	0	0	4	1	0	11	0	12	1	17	5	0	23	12	31	2	0	45	84
Total	15	0	6	0	21	5	0	34	0	39	6	62	12	0	80	51	136	19	0	206	346
Grand Total	18	0	7	0	25	9	0	39	0	48	10	105	20	0	135	67	275	30	0	372	580
Apprch %	72	0	28	0		18.8	0	81.2	0		7.4	77.8	14.8	0		18	73.9	8.1	0		
Total %	3.1	0	1.2	0	4.3	1.6	0	6.7	0	8.3	1.7	18.1	3.4	0	23.3	11.6	47.4	5.2	0	64.1	

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	1	0	1	2	**2**	0	7	9	**2**	12	3	17	8	**38**	3	49	77
08:15 AM	4	0	**3**	7	0	0	6	6	1	15	3	19	15	36	**7**	**58**	90
08:30 AM	**6**	0	2	**8**	2	0	10	**12**	2	**18**	1	21	**16**	31	7	54	**95**
08:45 AM	4	0	0	4	1	0	**11**	12	1	17	**5**	**23**	12	31	2	45	84
Total Volume	15	0	6	21	5	0	34	39	6	62	12	80	51	136	19	206	346
% App. Total	71.4	0	28.6		12.8	0	87.2		7.5	77.5	15		24.8	66	9.2		
PHF	.625	.000	.500	.656	.625	.000	.773	.813	.750	.861	.600	.870	.797	.895	.679	.888	.911

Exhibit A-1

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	2	3
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	4
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
Total	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	0	2	1	0	3	11
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	1	0	0	1	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	5	5
08:30 AM	0	0	1	0	1	0	0	0	0	0	0	3	0	0	3	0	3	1	0	4	8
08:45 AM	1	0	0	0	1	0	0	0	0	0	0	3	0	0	3	0	3	0	0	3	7
Total	1	0	1	0	2	0	0	0	0	0	1	7	0	0	8	0	10	3	0	13	23
Grand Total	1	0	1	0	2	0	0	0	0	0	1	15	0	0	16	0	12	4	0	16	34
Apprch %	50	0	50	0		0	0	0	0		6.2	93.8	0	0		0	75	25	0		
Total %	2.9	0	2.9	0	5.9	0	0	0	0	0	2.9	44.1	0	0	47.1	0	35.3	11.8	0	47.1	

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	0	0	0	0	**1**	1	0	2	0	1	0	1	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**	**2**	**5**	5
08:30 AM	0	0	**1**	**1**	0	0	0	0	0	**3**	0	**3**	0	3	1	4	**8**
08:45 AM	**1**	0	0	1	0	0	0	0	0	3	0	3	0	3	0	3	7
Total Volume	1	0	1	2	0	0	0	0	1	7	0	8	0	10	3	13	23
% App. Total	50	0	50		0	0	0		12.5	87.5	0		0	76.9	23.1		
PHF	.250	.000	.250	.500	.000	.000	.000	.000	.250	.583	.000	.667	.000	.833	.375	.650	.719

Exhibit A-2

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit A-3

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	1	0	1	0	2	1	14	3	0	18	5	21	3	0	29	49
07:15 AM	0	0	1	0	1	1	0	2	0	3	0	3	2	0	5	5	31	3	0	39	48
07:30 AM	1	0	0	0	1	0	0	2	0	2	3	14	2	0	19	4	34	2	0	40	62
07:45 AM	2	0	0	0	2	2	0	0	0	2	0	20	1	0	21	2	55	4	0	61	86
Total	3	0	1	0	4	4	0	5	0	9	4	51	8	0	63	16	141	12	0	169	245
08:00 AM	1	0	1	0	2	2	0	7	0	9	3	13	3	0	19	8	39	3	0	50	80
08:15 AM	4	0	3	0	7	0	0	6	0	6	1	15	3	0	19	15	39	9	0	63	95
08:30 AM	6	0	3	0	9	2	0	10	0	12	2	21	1	0	24	16	34	8	0	58	103
08:45 AM	5	0	0	0	5	1	0	11	0	12	1	20	5	0	26	12	34	2	0	48	91
Total	16	0	7	0	23	5	0	34	0	39	7	69	12	0	88	51	146	22	0	219	369
Grand Total	19	0	8	0	27	9	0	39	0	48	11	120	20	0	151	67	287	34	0	388	614
Apprch %	70.4	0	29.6	0		18.8	0	81.2	0		7.3	79.5	13.2	0		17.3	74	8.8	0		
Total %	3.1	0	1.3	0	4.4	1.5	0	6.4	0	7.8	1.8	19.5	3.3	0	24.6	10.9	46.7	5.5	0	63.2	
Cars	18	0	7	0	25	9	0	39	0	48	10	105	20	0	135	67	275	30	0	372	580
% Cars	94.7	0	87.5	0	92.6	100	0	100	0	100	90.9	87.5	100	0	89.4	100	95.8	88.2	0	95.9	94.5
Trucks	1	0	1	0	2	0	0	0	0	0	1	15	0	0	16	0	12	4	0	16	34
% Trucks	5.3	0	12.5	0	7.4	0	0	0	0	0	9.1	12.5	0	0	10.6	0	4.2	11.8	0	4.1	5.5

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	1	0	1	2	**2**	0	7	9	**3**	13	3	19	8	**39**	3	50	80
08:15 AM	4	0	**3**	7	0	0	6	6	1	15	3	19	15	39	**9**	**63**	95
08:30 AM	**6**	0	3	**9**	2	0	10	**12**	2	**21**	1	24	**16**	34	8	58	**103**
08:45 AM	5	0	0	5	1	0	**11**	12	1	20	**5**	**26**	12	34	2	48	91
Total Volume	16	0	7	23	5	0	34	39	7	69	12	88	51	146	22	219	369
% App. Total	69.6	0	30.4		12.8	0	87.2		8	78.4	13.6		23.3	66.7	10		
PHF	.667	.000	.583	.639	.625	.000	.773	.813	.583	.821	.600	.846	.797	.936	.611	.869	.896

Exhibit A-4

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	1	0	0	0	1	4	0	20	0	24	0	49	4	0	53	21	28	1	0	50	128
04:15 PM	0	0	0	0	0	6	0	19	0	25	0	39	3	0	42	15	24	1	0	40	107
04:30 PM	3	0	0	0	3	3	0	17	0	20	0	36	4	0	40	14	30	2	0	46	109
04:45 PM	3	0	0	0	3	3	0	19	0	22	0	29	5	0	34	20	21	2	0	43	102
Total	7	0	0	0	7	16	0	75	0	91	0	153	16	0	169	70	103	6	0	179	446
05:00 PM	0	0	1	0	1	5	0	23	0	28	1	40	3	0	44	13	12	1	0	26	99
05:15 PM	1	0	4	0	5	2	0	23	0	25	1	37	2	0	40	15	22	3	0	40	110
05:30 PM	1	0	1	0	2	2	0	20	0	22	0	26	5	0	31	13	20	2	0	35	90
05:45 PM	1	0	0	0	1	6	0	17	0	23	0	11	5	0	16	19	16	1	0	36	76
Total	3	0	6	0	9	15	0	83	0	98	2	114	15	0	131	60	70	7	0	137	375
Grand Total	10	0	6	0	16	31	0	158	0	189	2	267	31	0	300	130	173	13	0	316	821
Apprch %	62.5	0	37.5	0		16.4	0	83.6	0		0.7	89	10.3	0		41.1	54.7	4.1	0		
Total %	1.2	0	0.7	0	1.9	3.8	0	19.2	0	23	0.2	32.5	3.8	0	36.5	15.8	21.1	1.6	0	38.5	

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	0	0	1	4	0	**20**	24	0	**49**	4	**53**	**21**	28	1	**50**	**128**
04:15 PM	0	0	0	0	**6**	0	19	**25**	0	39	3	42	15	24	1	40	107
04:30 PM	**3**	0	0	**3**	3	0	17	20	0	36	4	40	14	**30**	**2**	46	109
04:45 PM	3	0	0	3	3	0	19	22	0	29	**5**	34	20	21	2	43	102
Total Volume	7	0	0	7	16	0	75	91	0	153	16	169	70	103	6	179	446
% App. Total	100	0	0		17.6	0	82.4		0	90.5	9.5		39.1	57.5	3.4		
PHF	.583	.000	.000	.583	.667	.000	.938	.910	.000	.781	.800	.797	.833	.858	.750	.895	.871

Exhibit A-5

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	4
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	4	0	0	4	5
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	4
Grand Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	7	0	0	7	9
Apprch %	0	0	0	0		0	0	0	0		0	100	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	22.2	0	0	22.2	0	77.8	0	0	77.8	

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	**3**	0	**3**	**4**
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
Total Volume	0	0	0	0	0	0	0	0	0	2	0	2	0	5	0	5	7
% App. Total	0	0	0		0	0	0		0	100	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.417	.000	.417	.438

Exhibit A-6

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit A-7

Peggy Malone & Associates
(888) 247-8602

File Name : 1-Ironbound Rd & Courthouse Commons Entrance PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Driveway Eastbound					Courthouse Commons Ent Westbound					Ironbound Rd Northbound					Ironbound Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	1	0	0	0	1	4	0	20	0	24	0	49	4	0	53	21	28	1	0	50	128
04:15 PM	0	0	0	0	0	6	0	19	0	25	0	40	3	0	43	15	27	1	0	43	111
04:30 PM	3	0	0	0	3	3	0	17	0	20	0	36	4	0	40	14	30	2	0	46	109
04:45 PM	3	0	0	0	3	3	0	19	0	22	0	29	5	0	34	20	22	2	0	44	103
Total	7	0	0	0	7	16	0	75	0	91	0	154	16	0	170	70	107	6	0	183	451
05:00 PM	0	0	1	0	1	5	0	23	0	28	1	41	3	0	45	13	13	1	0	27	101
05:15 PM	1	0	4	0	5	2	0	23	0	25	1	37	2	0	40	15	22	3	0	40	110
05:30 PM	1	0	1	0	2	2	0	20	0	22	0	26	5	0	31	13	20	2	0	35	90
05:45 PM	1	0	0	0	1	6	0	17	0	23	0	11	5	0	16	19	18	1	0	38	78
Total	3	0	6	0	9	15	0	83	0	98	2	115	15	0	132	60	73	7	0	140	379
Grand Total	10	0	6	0	16	31	0	158	0	189	2	269	31	0	302	130	180	13	0	323	830
Apprch %	62.5	0	37.5	0		16.4	0	83.6	0		0.7	89.1	10.3	0		40.2	55.7	4	0		
Total %	1.2	0	0.7	0	1.9	3.7	0	19	0	22.8	0.2	32.4	3.7	0	36.4	15.7	21.7	1.6	0	38.9	
Cars	10	0	6	0	16	31	0	158	0	189	2	267	31	0	300	130	173	13	0	316	821
% Cars	100	0	100	0	100	100	0	100	0	100	100	99.3	100	0	99.3	100	96.1	100	0	97.8	98.9
Trucks	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	7	0	0	7	9
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0.7	0	0	0.7	0	3.9	0	0	2.2	1.1

	Driveway Eastbound				Courthouse Commons Ent Westbound				Ironbound Rd Northbound				Ironbound Rd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	1	0	0	1	4	0	**20**	24	0	**49**	4	**53**	**21**	28	1	**50**	**128**
04:15 PM	0	0	0	0	**6**	0	19	**25**	0	40	3	43	15	27	1	43	111
04:30 PM	**3**	0	0	**3**	3	0	17	20	0	36	4	40	14	**30**	**2**	46	109
04:45 PM	3	0	0	3	3	0	19	22	0	29	**5**	34	20	22	2	44	103
Total Volume	7	0	0	7	16	0	75	91	0	154	16	170	70	107	6	183	451
% App. Total	100	0	0		17.6	0	82.4		0	90.6	9.4		38.3	58.5	3.3		
PHF	.583	.000	.000	.583	.667	.000	.938	.910	.000	.786	.800	.802	.833	.892	.750	.915	.881

Exhibit A-8

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	13	82	26	0	121	1	64	1	1	67	10	3	1	0	14	0	0	21	0	21	223
07:15 AM	33	118	39	3	193	0	55	2	1	58	5	0	0	0	5	2	0	27	0	29	285
07:30 AM	25	141	40	0	206	0	68	2	0	70	11	3	0	0	14	3	0	24	0	27	317
07:45 AM	42	199	61	0	302	0	59	2	0	61	12	4	3	0	19	1	0	22	0	23	405
Total	113	540	166	3	822	1	246	7	2	256	38	10	4	0	52	6	0	94	0	100	1230
08:00 AM	25	162	46	0	233	1	101	1	0	103	17	2	2	0	21	5	3	28	0	36	393
08:15 AM	34	199	52	0	285	4	91	6	0	101	17	1	2	0	20	5	1	27	0	33	439
08:30 AM	41	185	53	0	279	0	96	5	0	101	30	2	2	0	34	1	1	31	1	34	448
08:45 AM	40	163	43	0	246	0	107	9	0	116	26	5	3	0	34	3	3	39	0	45	441
Total	140	709	194	0	1043	5	395	21	0	421	90	10	9	0	109	14	8	125	1	148	1721
Grand Total	253	1249	360	3	1865	6	641	28	2	677	128	20	13	0	161	20	8	219	1	248	2951
Apprch %	13.6	67	19.3	0.2		0.9	94.7	4.1	0.3		79.5	12.4	8.1	0		8.1	3.2	88.3	0.4		
Total %	8.6	42.3	12.2	0.1	63.2	0.2	21.7	0.9	0.1	22.9	4.3	0.7	0.4	0	5.5	0.7	0.3	7.4	0	8.4	

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	25	162	46	233	1	101	1	103	17	2	2	21	**5**	**3**	28	36	393
08:15 AM	34	**199**	52	**285**	**4**	91	6	101	17	1	2	20	5	1	27	33	439
08:30 AM	**41**	185	**53**	279	0	96	5	101	**30**	2	2	**34**	1	1	31	33	**447**
08:45 AM	40	163	43	246	0	**107**	**9**	**116**	26	**5**	**3**	34	3	3	**39**	**45**	441
Total Volume	140	709	194	1043	5	395	21	421	90	10	9	109	14	8	125	147	1720
% App. Total	13.4	68	18.6		1.2	93.8	5		82.6	9.2	8.3		9.5	5.4	85		
PHF	.854	.891	.915	.915	.313	.923	.583	.907	.750	.500	.750	.801	.700	.667	.801	.817	.962

Exhibit B-1

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	1	0	1	0	2	1	1	0	0	2	1	0	0	0	1	0	0	0	0	0	5
07:15 AM	1	2	0	1	4	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	8
07:30 AM	1	3	2	0	6	0	4	0	0	4	3	0	0	0	3	0	0	1	0	1	14
07:45 AM	1	1	0	0	2	0	2	0	0	2	3	0	0	0	3	0	0	2	0	2	9
Total	4	6	3	1	14	1	10	0	0	11	8	0	0	0	8	0	0	3	0	3	36
08:00 AM	1	3	1	0	5	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	8
08:15 AM	1	2	4	0	7	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	9
08:30 AM	1	2	4	0	7	0	2	1	0	3	2	1	0	0	3	0	0	1	0	1	14
08:45 AM	0	2	2	0	4	1	5	0	0	6	5	0	0	0	5	0	0	3	0	3	18
Total	3	9	11	0	23	1	10	1	0	12	8	1	0	0	9	1	0	4	0	5	49
Grand Total	7	15	14	1	37	2	20	1	0	23	16	1	0	0	17	1	0	7	0	8	85
Apprch %	18.9	40.5	37.8	2.7		8.7	87	4.3	0		94.1	5.9	0	0		12.5	0	87.5	0		
Total %	8.2	17.6	16.5	1.2	43.5	2.4	23.5	1.2	0	27.1	18.8	1.2	0	0	20	1.2	0	8.2	0	9.4	

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**1**	**3**	1	5	0	2	0	2	1	0	0	1	0	0	0	0	8
08:15 AM	1	2	**4**	**7**	0	1	0	1	0	0	0	0	**1**	0	0	1	9
08:30 AM	1	2	4	7	0	2	**1**	3	2	**1**	0	3	0	0	1	1	14
08:45 AM	0	2	2	4	**1**	**5**	0	**6**	**5**	0	0	**5**	0	0	**3**	**3**	**18**
Total Volume	3	9	11	23	1	10	1	12	8	1	0	9	1	0	4	5	49
% App. Total	13	39.1	47.8		8.3	83.3	8.3		88.9	11.1	0		20	0	80		
PHF	.750	.750	.688	.821	.250	.500	.250	.500	.400	.250	.000	.450	.250	.000	.333	.417	.681

Exhibit B-2

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2
08:45 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	0	0	0	1	1	4
Grand Total	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	0	0	0	2	2	5
Apprch %	0	0	0	0		0	0	0	100		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	40	40	0	0	0	20	20	0	0	0	40	40	

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit B-3

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	14	82	27	0	123	2	65	1	1	69	11	3	1	0	15	0	0	21	0	21	228
07:15 AM	34	120	39	4	197	0	58	2	1	61	6	0	0	0	6	2	0	27	0	29	293
07:30 AM	26	144	42	0	212	0	72	2	0	74	14	3	0	0	17	3	0	25	0	28	331
07:45 AM	43	200	61	0	304	0	61	2	0	63	15	4	3	0	22	1	0	24	0	25	414
Total	117	546	169	4	836	2	256	7	2	267	46	10	4	0	60	6	0	97	0	103	1266
08:00 AM	26	165	47	0	238	1	103	1	0	105	18	2	2	0	22	5	3	28	0	36	401
08:15 AM	35	201	56	0	292	4	92	6	0	102	17	1	2	0	20	6	1	27	0	34	448
08:30 AM	42	187	57	0	286	0	98	6	0	104	32	3	2	0	37	1	1	32	1	35	462
08:45 AM	40	165	45	0	250	1	112	9	0	122	31	5	3	0	39	3	3	42	0	48	459
Total	143	718	205	0	1066	6	405	22	0	433	98	11	9	0	118	15	8	129	1	153	1770
Grand Total	260	1264	374	4	1902	8	661	29	2	700	144	21	13	0	178	21	8	226	1	256	3036
Apprch %	13.7	66.5	19.7	0.2		1.1	94.4	4.1	0.3		80.9	11.8	7.3	0		8.2	3.1	88.3	0.4		
Total %	8.6	41.6	12.3	0.1	62.6	0.3	21.8	1	0.1	23.1	4.7	0.7	0.4	0	5.9	0.7	0.3	7.4	0	8.4	
Cars	253	1249	360	3	1865	6	641	28	2	677	128	20	13	0	161	20	8	219	1	248	2951
% Cars	97.3	98.8	96.3	75	98.1	75	97	96.6	100	96.7	88.9	95.2	100	0	90.4	95.2	100	96.9	100	96.9	97.2
Trucks	7	15	14	1	37	2	20	1	0	23	16	1	0	0	17	1	0	7	0	8	85
% Trucks	2.7	1.2	3.7	25	1.9	25	3	3.4	0	3.3	11.1	4.8	0	0	9.6	4.8	0	3.1	0	3.1	2.8

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	26	165	47	238	1	103	1	105	18	2	2	22	5	**3**	28	36	401
08:15 AM	35	**201**	56	**292**	**4**	92	6	102	17	1	2	20	**6**	1	27	34	448
08:30 AM	**42**	187	**57**	286	0	98	6	104	**32**	3	2	37	1	1	32	34	**461**
08:45 AM	40	165	45	250	1	**112**	**9**	**122**	31	**5**	**3**	**39**	3	3	**42**	**48**	459
Total Volume	143	718	205	1066	6	405	22	433	98	11	9	118	15	8	129	152	1769
% App. Total	13.4	67.4	19.2		1.4	93.5	5.1		83.1	9.3	7.6		9.9	5.3	84.9		
PHF	.851	.893	.899	.913	.375	.904	.611	.887	.766	.550	.750	.756	.625	.667	.768	.792	.959

Exhibit B-4

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	50	182	32	0	264	0	257	17	0	274	57	5	1	0	63	20	11	120	0	151	752
04:15 PM	68	170	25	0	263	2	238	16	0	256	49	6	4	0	59	14	15	104	0	133	711
04:30 PM	50	181	39	0	270	2	192	20	0	214	54	4	2	0	60	18	6	92	0	116	660
04:45 PM	61	171	36	0	268	2	212	16	0	230	43	5	4	0	52	18	5	96	0	119	669
Total	229	704	132	0	1065	6	899	69	0	974	203	20	11	0	234	70	37	412	0	519	2792
05:00 PM	46	166	23	1	236	0	269	23	0	292	52	2	4	0	58	14	2	107	0	123	709
05:15 PM	58	175	27	1	261	1	231	23	0	255	53	7	1	0	61	8	11	101	0	120	697
05:30 PM	50	190	33	0	273	0	216	21	0	237	42	6	2	0	50	10	3	91	0	104	664
05:45 PM	46	165	26	0	237	1	201	13	0	215	23	4	2	0	29	15	7	66	0	88	569
Total	200	696	109	2	1007	2	917	80	0	999	170	19	9	0	198	47	23	365	0	435	2639
Grand Total	429	1400	241	2	2072	8	1816	149	0	1973	373	39	20	0	432	117	60	777	0	954	5431
Apprch %	20.7	67.6	11.6	0.1		0.4	92	7.6	0		86.3	9	4.6	0		12.3	6.3	81.4	0		
Total %	7.9	25.8	4.4	0	38.2	0.1	33.4	2.7	0	36.3	6.9	0.7	0.4	0	8	2.2	1.1	14.3	0	17.6	

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	50	**182**	32	264	0	**257**	17	**274**	**57**	5	1	**63**	**20**	11	**120**	**151**	**752**
04:15 PM	**68**	170	25	263	**2**	238	16	256	49	**6**	**4**	59	14	**15**	104	133	711
04:30 PM	50	181	**39**	**270**	2	192	**20**	214	54	4	2	60	18	6	92	116	660
04:45 PM	61	171	36	268	2	212	16	230	43	5	4	52	18	5	96	119	669
Total Volume	229	704	132	1065	6	899	69	974	203	20	11	234	70	37	412	519	2792
% App. Total	21.5	66.1	12.4		0.6	92.3	7.1		86.8	8.5	4.7		13.5	7.1	79.4		
PHF	.842	.967	.846	.986	.750	.875	.863	.889	.890	.833	.688	.929	.875	.617	.858	.859	.928

Exhibit B-5

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
04:15 PM	0	2	3	0	5	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	7
04:30 PM	0	2	0	0	2	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	6
04:45 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3
Total	1	5	4	0	10	0	7	0	0	7	1	0	0	0	1	0	0	1	0	1	19
05:00 PM	0	2	1	0	3	0	4	0	0	4	1	0	0	0	1	0	0	0	0	0	8
05:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
05:45 PM	1	2	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Total	1	5	3	0	9	0	6	0	0	6	1	0	0	0	1	0	0	0	0	0	16
Grand Total	2	10	7	0	19	0	13	0	0	13	2	0	0	0	2	0	0	1	0	1	35
Apprch %	10.5	52.6	36.8	0		0	100	0	0		100	0	0	0		0	0	100	0		
Total %	5.7	28.6	20	0	54.3	0	37.1	0	0	37.1	5.7	0	0	0	5.7	0	0	2.9	0	2.9	

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	**2**	**3**	**5**	0	1	0	1	0	0	0	0	0	0	**1**	**1**	7
04:30 PM	0	2	0	2	0	3	0	3	**1**	0	0	**1**	0	0	0	0	6
04:45 PM	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	0	3
05:00 PM	0	2	1	3	0	**4**	0	**4**	1	0	0	1	0	0	0	0	**8**
Total Volume	0	6	5	11	0	10	0	10	2	0	0	2	0	0	1	1	24
% App. Total	0	54.5	45.5		0	100	0		100	0	0		0	0	100		
PHF	.000	.750	.417	.550	.000	.625	.000	.625	.500	.000	.000	.500	.000	.000	.250	.250	.750

Exhibit B-6

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	4	4	5
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	4	4	5
Apprch %	0	0	0	0		0	0	0	0		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	0	0	0	80	80	

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit B-7

Peggy Malone & Associates
(888) 247-8602

File Name : 2-Casey Blvd_Ironbound Rd & Monticello Ave PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Ironbound Rd Northbound					Casey Blvd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	51	183	32	0	266	0	258	17	0	275	57	5	1	0	63	20	11	120	0	151	755
04:15 PM	68	172	28	0	268	2	239	16	0	257	49	6	4	0	59	14	15	105	0	134	718
04:30 PM	50	183	39	0	272	2	195	20	0	217	55	4	2	0	61	18	6	92	0	116	666
04:45 PM	61	171	37	0	269	2	214	16	0	232	43	5	4	0	52	18	5	96	0	119	672
Total	230	709	136	0	1075	6	906	69	0	981	204	20	11	0	235	70	37	413	0	520	2811
05:00 PM	46	168	24	1	239	0	273	23	0	296	53	2	4	0	59	14	2	107	0	123	717
05:15 PM	58	175	27	1	261	1	232	23	0	256	53	7	1	0	61	8	11	101	0	120	698
05:30 PM	50	191	33	0	274	0	217	21	0	238	42	6	2	0	50	10	3	91	0	104	666
05:45 PM	47	167	28	0	242	1	201	13	0	215	23	4	2	0	29	15	7	66	0	88	574
Total	201	701	112	2	1016	2	923	80	0	1005	171	19	9	0	199	47	23	365	0	435	2655
Grand Total	431	1410	248	2	2091	8	1829	149	0	1986	375	39	20	0	434	117	60	778	0	955	5466
Apprch %	20.6	67.4	11.9	0.1		0.4	92.1	7.5	0		86.4	9	4.6	0		12.3	6.3	81.5	0		
Total %	7.9	25.8	4.5	0	38.3	0.1	33.5	2.7	0	36.3	6.9	0.7	0.4	0	7.9	2.1	1.1	14.2	0	17.5	
Cars	429	1400	241	2	2072	8	1816	149	0	1973	373	39	20	0	432	117	60	777	0	954	5431
% Cars	99.5	99.3	97.2	100	99.1	100	99.3	100	0	99.3	99.5	100	100	0	99.5	100	100	99.9	0	99.9	99.4
Trucks	2	10	7	0	19	0	13	0	0	13	2	0	0	0	2	0	0	1	0	1	35
% Trucks	0.5	0.7	2.8	0	0.9	0	0.7	0	0	0.7	0.5	0	0	0	0.5	0	0	0.1	0	0.1	0.6

	Monticello Ave Eastbound				Monticello Ave Westbound				Ironbound Rd Northbound				Casey Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	51	**183**	32	266	0	**258**	17	**275**	**57**	5	1	**63**	**20**	11	**120**	**151**	**755**
04:15 PM	**68**	172	28	268	**2**	239	16	257	49	**6**	**4**	59	14	**15**	105	134	718
04:30 PM	50	183	**39**	**272**	2	195	**20**	217	55	4	2	61	18	6	92	116	666
04:45 PM	61	171	37	269	2	214	16	232	43	5	4	52	18	5	96	119	672
Total Volume	230	709	136	1075	6	906	69	981	204	20	11	235	70	37	413	520	2811
% App. Total	21.4	66	12.7		0.6	92.4	7		86.8	8.5	4.7		13.5	7.1	79.4		
PHF	.846	.969	.872	.988	.750	.878	.863	.892	.895	.833	.688	.933	.875	.617	.860	.861	.931

Exhibit B-8

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
07:00 AM	0	91	0	91	78	19	0	97	0	0	0	33	33	221
07:15 AM	0	154	0	154	67	20	0	87	0	0	0	36	36	277
07:30 AM	0	165	0	165	78	22	0	100	0	0	0	33	33	298
07:45 AM	0	235	0	235	79	16	0	95	0	0	0	65	65	395
Total	0	645	0	645	302	77	0	379	0	0	0	167	167	1191
08:00 AM	0	192	0	192	118	23	0	141	0	0	0	53	53	386
08:15 AM	0	226	0	226	107	26	0	133	0	0	0	58	58	417
08:30 AM	0	218	0	218	120	33	0	153	0	0	0	55	55	426
08:45 AM	0	189	0	189	126	41	0	167	0	0	0	59	59	415
Total	0	825	0	825	471	123	0	594	0	0	0	225	225	1644
Grand Total	0	1470	0	1470	773	200	0	973	0	0	0	392	392	2835
Apprch %	0	100	0		79.4	20.6	0		0	0	0	100		
Total %	0	51.9	0	51.9	27.3	7.1	0	34.3	0	0	0	13.8	13.8	

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 08:00 AM												
08:00 AM	0	192	192	118	23	141	0	0	0	53	53	386
08:15 AM	0	**226**	**226**	107	26	133	0	0	0	58	58	417
08:30 AM	0	218	218	120	33	153	0	0	0	55	55	**426**
08:45 AM	0	189	189	**126**	**41**	**167**	0	0	0	**59**	**59**	415
Total Volume	0	825	825	471	123	594	0	0	0	225	225	1644
% App. Total	0	100		79.3	20.7		0	0	0	100		
PHF	.000	.913	.913	.935	.750	.889	.000	.000	.000	.953	.953	.965

Exhibit C-1

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
07:00 AM	0	1	0	1	2	0	0	2	0	0	0	1	1	4
07:15 AM	0	2	0	2	3	1	0	4	0	0	0	2	2	8
07:30 AM	0	4	0	4	5	3	0	8	0	0	0	2	2	14
07:45 AM	0	2	0	2	3	4	0	7	0	0	0	0	0	9
Total	0	9	0	9	13	8	0	21	0	0	0	5	5	35
08:00 AM	0	2	0	2	2	1	0	3	0	0	0	1	1	6
08:15 AM	0	6	0	6	1	0	0	1	0	0	0	3	3	10
08:30 AM	0	5	0	5	4	1	0	5	0	0	0	2	2	12
08:45 AM	0	1	0	1	7	7	0	14	0	0	0	3	3	18
Total	0	14	0	14	14	9	0	23	0	0	0	9	9	46
Grand Total	0	23	0	23	27	17	0	44	0	0	0	14	14	81
Apprch %	0	100	0		61.4	38.6	0		0	0	0	100		
Total %	0	28.4	0	28.4	33.3	21	0	54.3	0	0	0	17.3	17.3	

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 08:00 AM												
08:00 AM	0	2	2	2	1	3	0	0	0	1	1	6
08:15 AM	0	**6**	**6**	1	0	1	0	0	0	**3**	**3**	10
08:30 AM	0	5	5	4	1	5	0	0	0	2	2	12
08:45 AM	0	1	1	**7**	**7**	**14**	0	0	0	3	3	**18**
Total Volume	0	14	14	14	9	23	0	0	0	9	9	46
% App. Total	0	100		60.9	39.1		0	0	0	100		
PHF	.000	.583	.583	.500	.321	.411	.000	.000	.000	.750	.750	.639

Exhibit C-2

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	1	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	0	1	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Apprch %	0	0	0		0	0	0		100	0	0	0		
Total %	0	0	0	0	0	0	0	0	100	0	0	0	100	

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 07:00 AM												
07:00 AM	0	0	0	0	0	0	**1**	0	0	0	**1**	**1**
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	0	1	1
% App. Total	0	0		0	0		100	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.250

Exhibit C-3

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
07:00 AM	0	92	0	92	80	19	0	99	0	0	0	34	34	225
07:15 AM	0	156	0	156	70	21	0	91	0	0	0	38	38	285
07:30 AM	0	169	0	169	83	25	0	108	0	0	0	35	35	312
07:45 AM	0	237	0	237	82	20	0	102	0	0	0	65	65	404
Total	0	654	0	654	315	85	0	400	0	0	0	172	172	1226
08:00 AM	0	194	0	194	120	24	0	144	0	0	0	54	54	392
08:15 AM	0	232	0	232	108	26	0	134	0	0	0	61	61	427
08:30 AM	0	223	0	223	124	34	0	158	0	0	0	57	57	438
08:45 AM	0	190	0	190	133	48	0	181	0	0	0	62	62	433
Total	0	839	0	839	485	132	0	617	0	0	0	234	234	1690
Grand Total	0	1493	0	1493	800	217	0	1017	0	0	0	406	406	2916
Apprch %	0	100	0		78.7	21.3	0		0	0	0	100		
Total %	0	51.2	0	51.2	27.4	7.4	0	34.9	0	0	0	13.9	13.9	
Cars	0	1470	0	1470	773	200	0	973	0	0	0	392	392	2835
% Cars	0	98.5	0	98.5	96.6	92.2	0	95.7	0	0	0	96.6	96.6	97.2
Trucks	0	23	0	23	27	17	0	44	0	0	0	14	14	81
% Trucks	0	1.5	0	1.5	3.4	7.8	0	4.3	0	0	0	3.4	3.4	2.8

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 08:00 AM												
08:00 AM	0	194	194	120	24	144	0	0	0	54	54	392
08:15 AM	0	**232**	**232**	108	26	134	0	0	0	61	61	427
08:30 AM	0	223	223	124	34	158	0	0	0	57	57	**438**
08:45 AM	0	190	190	**133**	**48**	**181**	0	0	0	**62**	**62**	433
Total Volume	0	839	839	485	132	617	0	0	0	234	234	1690
% App. Total	0	100		78.6	21.4		0	0	0	100		
PHF	.000	.904	.904	.912	.688	.852	.000	.000	.000	.944	.944	.965

Exhibit C-4

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
04:00 PM	0	217	0	217	330	97	0	427	0	0	0	57	57	701
04:15 PM	0	215	0	215	309	85	0	394	0	0	0	42	42	651
04:30 PM	0	206	0	206	257	79	0	336	0	0	0	55	55	597
04:45 PM	0	224	0	224	284	68	0	352	0	0	0	51	51	627
Total	0	862	0	862	1180	329	0	1509	0	0	0	205	205	2576
05:00 PM	0	198	0	198	329	92	0	421	0	0	0	33	33	652
05:15 PM	0	219	0	219	302	86	0	388	0	0	0	45	45	652
05:30 PM	0	217	0	217	278	69	0	347	0	0	0	50	50	614
05:45 PM	0	210	0	210	243	45	0	288	0	0	0	35	35	533
Total	0	844	0	844	1152	292	0	1444	0	0	0	163	163	2451
Grand Total	0	1706	0	1706	2332	621	0	2953	0	0	0	368	368	5027
Apprch %	0	100	0		79	21	0		0	0	0	100		
Total %	0	33.9	0	33.9	46.4	12.4	0	58.7	0	0	0	7.3	7.3	

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 04:00 PM												
04:00 PM	0	217	217	**330**	**97**	**427**	0	0	0	**57**	**57**	**701**
04:15 PM	0	215	215	309	85	394	0	0	0	42	42	651
04:30 PM	0	206	206	257	79	336	0	0	0	55	55	597
04:45 PM	0	**224**	**224**	284	68	352	0	0	0	51	51	627
Total Volume	0	862	862	1180	329	1509	0	0	0	205	205	2576
% App. Total	0	100		78.2	21.8		0	0	0	100		
PHF	.000	.962	.962	.894	.848	.883	.000	.000	.000	.899	.899	.919

Exhibit C-5

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
04:00 PM	0	2	0	2	1	1	0	2	0	0	0	0	0	4
04:15 PM	0	5	0	5	1	1	0	2	0	0	0	0	0	7
04:30 PM	0	2	0	2	3	0	0	3	0	0	0	0	0	5
04:45 PM	0	1	0	1	1	1	0	2	0	0	0	0	0	3
Total	0	10	0	10	6	3	0	9	0	0	0	0	0	19
05:00 PM	0	2	0	2	2	2	0	4	0	0	0	0	0	6
05:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	1
05:30 PM	0	1	0	1	1	0	0	1	0	0	0	0	0	2
05:45 PM	0	5	0	5	0	0	0	0	0	0	0	0	0	5
Total	0	8	0	8	4	2	0	6	0	0	0	0	0	14
Grand Total	0	18	0	18	10	5	0	15	0	0	0	0	0	33
Apprch %	0	100	0		66.7	33.3	0		0	0	0	0		
Total %	0	54.5	0	54.5	30.3	15.2	0	45.5	0	0	0	0	0	

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 04:15 PM												
04:15 PM	0	**5**	**5**	1	1	2	0	0	0	0	0	**7**
04:30 PM	0	2	2	**3**	0	3	0	0	0	0	0	5
04:45 PM	0	1	1	1	1	2	0	0	0	0	0	3
05:00 PM	0	2	2	2	**2**	**4**	0	0	0	0	0	6
Total Volume	0	10	10	7	4	11	0	0	0	0	0	21
% App. Total	0	100		63.6	36.4		0	0	0	0		
PHF	.000	.500	.500	.583	.500	.688	.000	.000	.000	.000	.000	.750

Exhibit C-6

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Apprch %	0	0	0		0	0	0		100	0	0	0		
Total %	0	0	0	0	0	0	0	0	100	0	0	0	100	

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 04:00 PM												
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	**1**	0	0	0	**1**	**1**
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	0	1	1
% App. Total	0	0		0	0		100	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.250

Exhibit C-7

Peggy Malone & Associates
(888) 247-8602

File Name : 3-Monticello Ave & RT 199 Ramps PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Monticello Eastbound				Monticello Ave Westbound				RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
04:00 PM	0	219	0	219	331	98	0	429	0	0	0	57	57	705
04:15 PM	0	220	0	220	310	86	0	396	0	0	0	42	42	658
04:30 PM	0	208	0	208	260	79	0	339	0	0	0	55	55	602
04:45 PM	0	225	0	225	285	69	0	354	0	0	0	51	51	630
Total	0	872	0	872	1186	332	0	1518	0	0	0	205	205	2595
05:00 PM	0	200	0	200	331	94	0	425	0	0	0	33	33	658
05:15 PM	0	219	0	219	303	86	0	389	0	0	0	45	45	653
05:30 PM	0	218	0	218	279	69	0	348	0	0	0	50	50	616
05:45 PM	0	215	0	215	243	45	0	288	0	0	0	35	35	538
Total	0	852	0	852	1156	294	0	1450	0	0	0	163	163	2465
Grand Total	0	1724	0	1724	2342	626	0	2968	0	0	0	368	368	5060
Apprch %	0	100	0		78.9	21.1	0		0	0	0	100		
Total %	0	34.1	0	34.1	46.3	12.4	0	58.7	0	0	0	7.3	7.3	
Cars	0	1706	0	1706	2332	621	0	2953	0	0	0	368	368	5027
% Cars	0	99	0	99	99.6	99.2	0	99.5	0	0	0	100	100	99.3
Trucks	0	18	0	18	10	5	0	15	0	0	0	0	0	33
% Trucks	0	1	0	1	0.4	0.8	0	0.5	0	0	0	0	0	0.7

	Monticello Eastbound			Monticello Ave Westbound			RT 199 NB Off Ramp Northbound					
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	U-Turn	Thru	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 04:00 PM												
04:00 PM	0	219	219	**331**	**98**	**429**	0	0	0	**57**	**57**	**705**
04:15 PM	0	220	220	310	86	396	0	0	0	42	42	658
04:30 PM	0	208	208	260	79	339	0	0	0	55	55	602
04:45 PM	0	**225**	**225**	285	69	354	0	0	0	51	51	630
Total Volume	0	872	872	1186	332	1518	0	0	0	205	205	2595
% App. Total	0	100		78.1	21.9		0	0	0	100		
PHF	.000	.969	.969	.896	.847	.885	.000	.000	.000	.899	.899	.920

Exhibit C-8

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	44	76	0	0	120	29	50	0	0	79	36	0	0	0	36	13	0	0	0	13	248
07:15 AM	59	112	1	0	172	19	45	0	2	66	56	0	0	0	56	39	0	0	0	39	333
07:30 AM	88	122	0	0	210	20	60	0	0	80	28	0	0	0	28	51	0	0	0	51	369
07:45 AM	104	172	0	0	276	17	57	0	0	74	69	0	0	0	69	62	0	0	1	63	482
Total	295	482	1	0	778	85	212	0	2	299	189	0	0	0	189	165	0	0	1	166	1432
08:00 AM	74	132	0	0	206	30	96	0	0	126	58	0	0	0	58	50	0	0	0	50	440
08:15 AM	75	172	0	0	247	26	84	0	0	110	51	0	0	0	51	52	0	0	1	53	461
08:30 AM	65	163	0	0	228	25	94	0	0	119	63	0	0	0	63	59	0	0	0	59	469
08:45 AM	70	141	0	0	211	31	94	0	0	125	54	0	0	0	54	60	0	0	0	60	450
Total	284	608	0	0	892	112	368	0	0	480	226	0	0	0	226	221	0	0	1	222	1820
Grand Total	579	1090	1	0	1670	197	580	0	2	779	415	0	0	0	415	386	0	0	2	388	3252
Apprch %	34.7	65.3	0.1	0		25.3	74.5	0	0.3		100	0	0	0		99.5	0	0	0.5		
Total %	17.8	33.5	0	0	51.4	6.1	17.8	0	0.1	24	12.8	0	0	0	12.8	11.9	0	0	0.1	11.9	

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	**104**	**172**	0	**276**	17	57	0	74	**69**	0	0	**69**	**62**	0	0	**62**	**481**
08:00 AM	74	132	0	206	**30**	**96**	0	**126**	58	0	0	58	50	0	0	50	440
08:15 AM	75	172	0	247	26	84	0	110	51	0	0	51	52	0	0	52	460
08:30 AM	65	163	0	228	25	94	0	119	63	0	0	63	59	0	0	59	469
Total Volume	318	639	0	957	98	331	0	429	241	0	0	241	223	0	0	223	1850
% App. Total	33.2	66.8	0		22.8	77.2	0		100	0	0		100	0	0		
PHF	.764	.929	.000	.867	.817	.862	.000	.851	.873	.000	.000	.873	.899	.000	.000	.899	.962

Exhibit D-1

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	1	0	0	0	1	1	0	0	0	1	2	0	0	0	2	1	0	0	0	1	5
07:15 AM	1	2	0	0	3	1	2	0	0	3	5	0	0	2	7	0	0	0	0	0	13
07:30 AM	1	3	0	0	4	1	4	0	0	5	1	0	0	0	1	1	0	0	0	1	11
07:45 AM	0	0	0	0	0	1	1	0	0	2	2	0	0	0	2	3	0	0	0	3	7
Total	3	5	0	0	8	4	7	0	0	11	10	0	0	2	12	5	0	0	0	5	36
08:00 AM	2	2	0	0	4	0	4	0	0	4	2	0	0	0	2	1	0	0	0	1	11
08:15 AM	0	4	0	0	4	0	1	0	0	1	1	0	0	0	1	2	0	0	0	2	8
08:30 AM	1	4	0	0	5	1	3	0	0	4	3	0	0	0	3	1	0	0	0	1	13
08:45 AM	3	1	0	0	4	3	4	0	0	7	4	0	0	0	4	0	0	0	0	0	15
Total	6	11	0	0	17	4	12	0	0	16	10	0	0	0	10	4	0	0	0	4	47
Grand Total	9	16	0	0	25	8	19	0	0	27	20	0	0	2	22	9	0	0	0	9	83
Apprch %	36	64	0	0		29.6	70.4	0	0		90.9	0	0	9.1		100	0	0	0		
Total %	10.8	19.3	0	0	30.1	9.6	22.9	0	0	32.5	24.1	0	0	2.4	26.5	10.8	0	0	0	10.8	

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	2	2	0	4	0	**4**	0	4	2	0	0	2	1	0	0	1	11
08:15 AM	0	**4**	0	4	0	1	0	1	1	0	0	1	**2**	0	0	**2**	8
08:30 AM	1	4	0	**5**	1	3	0	4	3	0	0	3	1	0	0	1	13
08:45 AM	**3**	1	0	4	**3**	4	0	**7**	**4**	0	0	**4**	0	0	0	0	**15**
Total Volume	6	11	0	17	4	12	0	16	10	0	0	10	4	0	0	4	47
% App. Total	35.3	64.7	0		25	75	0		100	0	0		100	0	0		
PHF	.500	.688	.000	.850	.333	.750	.000	.571	.625	.000	.000	.625	.500	.000	.000	.500	.783

Exhibit D-2

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	3	3	4
Apprch %	0	0	0	0		0	0	0	0		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	25	25	0	0	0	75	75	

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit D-3

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) AM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	45	76	0	0	121	30	50	0	0	80	38	0	0	0	38	14	0	0	0	14	253
07:15 AM	60	114	1	0	175	20	47	0	2	69	61	0	0	2	63	39	0	0	0	39	346
07:30 AM	89	125	0	0	214	21	64	0	0	85	29	0	0	0	29	52	0	0	0	52	380
07:45 AM	104	172	0	0	276	18	58	0	0	76	71	0	0	0	71	65	0	0	1	66	489
Total	298	487	1	0	786	89	219	0	2	310	199	0	0	2	201	170	0	0	1	171	1468
08:00 AM	76	134	0	0	210	30	100	0	0	130	60	0	0	0	60	51	0	0	0	51	451
08:15 AM	75	176	0	0	251	26	85	0	0	111	52	0	0	0	52	54	0	0	1	55	469
08:30 AM	66	167	0	0	233	26	97	0	0	123	66	0	0	0	66	60	0	0	0	60	482
08:45 AM	73	142	0	0	215	34	98	0	0	132	58	0	0	0	58	60	0	0	0	60	465
Total	290	619	0	0	909	116	380	0	0	496	236	0	0	0	236	225	0	0	1	226	1867
Grand Total	588	1106	1	0	1695	205	599	0	2	806	435	0	0	2	437	395	0	0	2	397	3335
Apprch %	34.7	65.3	0.1	0		25.4	74.3	0	0.2		99.5	0	0	0.5		99.5	0	0	0.5		
Total %	17.6	33.2	0	0	50.8	6.1	18	0	0.1	24.2	13	0	0	0.1	13.1	11.8	0	0	0.1	11.9	
Cars	579	1090	1	0	1670	197	580	0	2	779	415	0	0	0	415	386	0	0	2	388	3252
% Cars	98.5	98.6	100	0	98.5	96.1	96.8	0	100	96.7	95.4	0	0	0	95	97.7	0	0	100	97.7	97.5
Trucks	9	16	0	0	25	8	19	0	0	27	20	0	0	2	22	9	0	0	0	9	83
% Trucks	1.5	1.4	0	0	1.5	3.9	3.2	0	0	3.3	4.6	0	0	100	5	2.3	0	0	0	2.3	2.5

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	**104**	172	0	**276**	18	58	0	76	**71**	0	0	**71**	**65**	0	0	**65**	**488**
08:00 AM	76	134	0	210	**30**	**100**	0	**130**	60	0	0	60	51	0	0	51	451
08:15 AM	75	**176**	0	251	26	85	0	111	52	0	0	52	54	0	0	54	468
08:30 AM	66	167	0	233	26	97	0	123	66	0	0	66	60	0	0	60	482
Total Volume	321	649	0	970	100	340	0	440	249	0	0	249	230	0	0	230	1889
% App. Total	33.1	66.9	0		22.7	77.3	0		100	0	0		100	0	0		
PHF	.772	.922	.000	.879	.833	.850	.000	.846	.877	.000	.000	.877	.885	.000	.000	.885	.968

Exhibit D-4

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	93	169	0	0	262	61	274	0	0	335	114	0	0	0	114	41	0	0	0	41	752
04:15 PM	114	162	0	0	276	52	261	0	0	313	97	0	0	0	97	50	0	0	0	50	736
04:30 PM	92	167	0	0	259	47	189	0	0	236	136	0	0	1	137	53	0	0	0	53	685
04:45 PM	120	151	0	0	271	54	248	0	1	303	114	0	0	0	114	56	0	0	2	58	746
Total	419	649	0	0	1068	214	972	0	1	1187	461	0	0	1	462	200	0	0	2	202	2919
05:00 PM	125	156	0	0	281	70	269	0	2	341	98	0	0	0	98	40	0	0	1	41	761
05:15 PM	114	157	0	0	271	62	225	0	0	287	118	0	0	0	118	66	0	0	0	66	742
05:30 PM	98	179	0	0	277	47	244	0	0	291	132	0	0	0	132	39	0	0	0	39	739
05:45 PM	97	167	0	0	264	36	215	0	0	251	95	0	0	0	95	36	0	0	0	36	646
Total	434	659	0	0	1093	215	953	0	2	1170	443	0	0	0	443	181	0	0	1	182	2888
Grand Total	853	1308	0	0	2161	429	1925	0	3	2357	904	0	0	1	905	381	0	0	3	384	5807
Apprch %	39.5	60.5	0	0		18.2	81.7	0	0.1		99.9	0	0	0.1		99.2	0	0	0.8		
Total %	14.7	22.5	0	0	37.2	7.4	33.1	0	0.1	40.6	15.6	0	0	0	15.6	6.6	0	0	0.1	6.6	

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	120	151	0	271	54	248	0	302	114	0	0	114	56	0	0	56	743
05:00 PM	**125**	156	0	**281**	**70**	**269**	0	**339**	98	0	0	98	40	0	0	40	**758**
05:15 PM	114	157	0	271	62	225	0	287	118	0	0	118	**66**	0	0	**66**	742
05:30 PM	98	**179**	0	277	47	244	0	291	**132**	0	0	**132**	39	0	0	39	739
Total Volume	457	643	0	1100	233	986	0	1219	462	0	0	462	201	0	0	201	2982
% App. Total	41.5	58.5	0		19.1	80.9	0		100	0	0		100	0	0		
PHF	.914	.898	.000	.979	.832	.916	.000	.899	.875	.000	.000	.875	.761	.000	.000	.761	.984

Exhibit D-5

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	4
04:15 PM	0	5	0	0	5	0	1	0	0	1	1	0	0	0	1	1	0	0	0	1	8
04:30 PM	3	1	0	0	4	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	8
04:45 PM	0	1	0	0	1	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	4
Total	4	8	0	0	12	0	7	0	0	7	3	0	0	0	3	2	0	0	0	2	24
05:00 PM	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	1	0	0	0	1	5
05:15 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
05:30 PM	1	1	0	0	2	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	4
05:45 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	5
Total	2	4	0	0	6	0	5	0	0	5	2	0	0	0	2	3	0	0	0	3	16
Grand Total	6	12	0	0	18	0	12	0	0	12	5	0	0	0	5	5	0	0	0	5	40
Apprch %	33.3	66.7	0	0		0	100	0	0		100	0	0	0		100	0	0	0		
Total %	15	30	0	0	45	0	30	0	0	30	12.5	0	0	0	12.5	12.5	0	0	0	12.5	

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	**5**	0	**5**	0	1	0	1	**1**	0	0	**1**	**1**	0	0	**1**	**8**
04:30 PM	**3**	1	0	4	0	**3**	0	**3**	1	0	0	1	0	0	0	0	8
04:45 PM	0	1	0	1	0	2	0	2	1	0	0	1	0	0	0	0	4
05:00 PM	0	1	0	1	0	3	0	3	0	0	0	0	1	0	0	1	5
Total Volume	3	8	0	11	0	9	0	9	3	0	0	3	2	0	0	2	25
% App. Total	27.3	72.7	0		0	100	0		100	0	0		100	0	0		
PHF	.250	.400	.000	.550	.000	.750	.000	.750	.750	.000	.000	.750	.500	.000	.000	.500	.781

Exhibit D-6

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	1	1	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	6
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	7	7	10
Apprch %	0	0	0	0		0	0	0	0		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30	0	0	0	70	70	

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit D-7

Peggy Malone & Associates
(888) 247-8602

File Name : 4-Monticello Ave & RT 199 Ramps (Signalized) PM
Site Code :
Start Date : 4/13/2021
Page No : 1

Groups Printed- Cars - Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					RT 199 Ramps Northbound					RT 199 Ramps Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	94	170	0	0	264	61	275	0	0	336	114	0	0	0	114	42	0	0	0	42	756
04:15 PM	114	167	0	0	281	52	262	0	0	314	98	0	0	0	98	51	0	0	0	51	744
04:30 PM	95	168	0	0	263	47	192	0	0	239	137	0	0	1	138	53	0	0	0	53	693
04:45 PM	120	152	0	0	272	54	250	0	1	305	115	0	0	0	115	56	0	0	2	58	750
Total	423	657	0	0	1080	214	979	0	1	1194	464	0	0	1	465	202	0	0	2	204	2943
05:00 PM	125	157	0	0	282	70	272	0	2	344	98	0	0	0	98	41	0	0	1	42	766
05:15 PM	114	157	0	0	271	62	226	0	0	288	119	0	0	0	119	66	0	0	0	66	744
05:30 PM	99	180	0	0	279	47	245	0	0	292	133	0	0	0	133	39	0	0	0	39	743
05:45 PM	98	169	0	0	267	36	215	0	0	251	95	0	0	0	95	38	0	0	0	38	651
Total	436	663	0	0	1099	215	958	0	2	1175	445	0	0	0	445	184	0	0	1	185	2904
Grand Total	859	1320	0	0	2179	429	1937	0	3	2369	909	0	0	1	910	386	0	0	3	389	5847
Apprch %	39.4	60.6	0	0		18.1	81.8	0	0.1		99.9	0	0	0.1		99.2	0	0	0.8		
Total %	14.7	22.6	0	0	37.3	7.3	33.1	0	0.1	40.5	15.5	0	0	0	15.6	6.6	0	0	0.1	6.7	
Cars	853	1308	0	0	2161	429	1925	0	3	2357	904	0	0	1	905	381	0	0	3	384	5807
% Cars	99.3	99.1	0	0	99.2	100	99.4	0	100	99.5	99.4	0	0	100	99.5	98.7	0	0	100	98.7	99.3
Trucks	6	12	0	0	18	0	12	0	0	12	5	0	0	0	5	5	0	0	0	5	40
% Trucks	0.7	0.9	0	0	0.8	0	0.6	0	0	0.5	0.6	0	0	0	0.5	1.3	0	0	0	1.3	0.7

	Monticello Ave Eastbound				Monticello Ave Westbound				RT 199 Ramps Northbound				RT 199 Ramps Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	120	152	0	272	54	250	0	304	115	0	0	115	56	0	0	56	747
05:00 PM	**125**	157	0	**282**	**70**	**272**	0	**342**	98	0	0	98	41	0	0	41	**763**
05:15 PM	114	157	0	271	62	226	0	288	119	0	0	119	**66**	0	0	**66**	744
05:30 PM	99	**180**	0	279	47	245	0	292	**133**	0	0	**133**	39	0	0	39	743
Total Volume	458	646	0	1104	233	993	0	1226	465	0	0	465	202	0	0	202	2997
% App. Total	41.5	58.5	0		19	81	0		100	0	0		100	0	0		
PHF	.916	.897	.000	.979	.832	.913	.000	.896	.874	.000	.000	.874	.765	.000	.000	.765	.982

Exhibit D-8

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave AM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Cars

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
07:00 AM	0	78	13	0	91	11	50	1	0	62	17	2	11	0	30	1	0	0	0	1	184
07:15 AM	2	93	20	0	115	8	52	4	0	64	18	0	11	0	29	0	3	1	0	4	212
07:30 AM	4	108	17	0	129	11	46	1	0	58	12	1	12	0	25	1	3	1	0	5	217
07:45 AM	5	147	21	0	173	8	75	5	0	88	13	0	13	0	26	2	2	6	0	10	297
Total	11	426	71	0	508	38	223	11	0	272	60	3	47	0	110	4	8	8	0	20	910
08:00 AM	8	143	21	0	172	14	82	5	0	101	14	3	11	0	28	3	2	8	0	13	314
08:15 AM	8	151	27	0	186	7	93	4	0	104	18	4	11	0	33	2	3	5	0	10	333
08:30 AM	10	149	13	0	172	5	84	3	0	92	13	1	10	0	24	4	2	8	0	14	302
08:45 AM	19	179	27	0	225	17	94	3	0	114	19	2	14	0	35	3	1	6	0	10	384
Total	45	622	88	0	755	43	353	15	0	411	64	10	46	0	120	12	8	27	0	47	1333
Grand Total	56	1048	159	0	1263	81	576	26	0	683	124	13	93	0	230	16	16	35	0	67	2243
Apprch %	4.4	83	12.6	0		11.9	84.3	3.8	0		53.9	5.7	40.4	0		23.9	23.9	52.2	0		
Total %	2.5	46.7	7.1	0	56.3	3.6	25.7	1.2	0	30.5	5.5	0.6	4.1	0	10.3	0.7	0.7	1.6	0	3	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	8	143	21	172	14	82	**5**	101	14	3	11	28	3	2	**8**	13	314
08:15 AM	8	151	**27**	186	7	93	4	104	18	**4**	11	33	2	**3**	5	10	333
08:30 AM	10	149	13	172	5	84	3	92	13	1	10	24	**4**	2	8	**14**	302
08:45 AM	**19**	**179**	27	**225**	**17**	**94**	3	**114**	**19**	2	**14**	**35**	3	1	6	10	**384**
Total Volume	45	622	88	755	43	353	15	411	64	10	46	120	12	8	27	47	1333
% App. Total	6	82.4	11.7		10.5	85.9	3.6		53.3	8.3	38.3		25.5	17	57.4		
PHF	.592	.869	.815	.839	.632	.939	.750	.901	.842	.625	.821	.857	.750	.667	.844	.839	.868

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	8	143	21	172	14	82	**5**	101	14	3	11	28	3	2	**8**	13	314
08:15 AM	8	151	**27**	186	7	93	4	104	18	**4**	11	33	2	**3**	5	10	333
08:30 AM	10	149	13	172	5	84	3	92	13	1	10	24	**4**	2	8	**14**	302
08:45 AM	**19**	**179**	27	**225**	**17**	**94**	3	**114**	**19**	2	**14**	**35**	3	1	6	10	**384**
Total Volume	45	622	88	755	43	353	15	411	64	10	46	120	12	8	27	47	1333
% App. Total	6	82.4	11.7		10.5	85.9	3.6		53.3	8.3	38.3		25.5	17	57.4		
PHF	.592	.869	.815	.839	.632	.939	.750	.901	.842	.625	.821	.857	.750	.667	.844	.839	.868

Exhibit E-1

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave AM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
07:00 AM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3
07:15 AM	0	3	0	0	3	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	5
07:30 AM	0	3	0	0	3	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	8
07:45 AM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	4
Total	0	9	0	0	9	0	10	0	0	10	1	0	0	0	1	0	0	0	0	0	20
08:00 AM	2	1	0	0	3	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	8
08:15 AM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	4
08:30 AM	0	5	0	0	5	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	7
08:45 AM	0	3	1	0	4	0	5	1	0	6	0	0	1	0	1	0	0	0	0	0	11
Total	2	11	1	0	14	0	14	1	0	15	0	0	1	0	1	0	0	0	0	0	30
Grand Total	2	20	1	0	23	0	24	1	0	25	1	0	1	0	2	0	0	0	0	0	50
Apprch %	8.7	87	4.3	0		0	96	4	0		50	0	50	0		0	0	0	0		
Total %	4	40	2	0	46	0	48	2	0	50	2	0	2	0	4	0	0	0	0	0	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**2**	1	0	3	0	**5**	0	5	0	0	0	0	0	0	0	0	8
08:15 AM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
08:30 AM	0	**5**	0	**5**	0	2	0	2	0	0	0	0	0	0	0	0	7
08:45 AM	0	3	**1**	4	0	5	**1**	**6**	0	0	**1**	**1**	0	0	0	0	**11**
Total Volume	2	11	1	14	0	14	1	15	0	0	1	1	0	0	0	0	30
% App. Total	14.3	78.6	7.1		0	93.3	6.7		0	0	100		0	0	0		
PHF	.250	.550	.250	.700	.000	.700	.250	.625	.000	.000	.250	.250	.000	.000	.000	.000	.682

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**2**	1	0	3	0	**5**	0	5	0	0	0	0	0	0	0	0	8
08:15 AM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
08:30 AM	0	**5**	0	**5**	0	2	0	2	0	0	0	0	0	0	0	0	7
08:45 AM	0	3	**1**	4	0	5	**1**	**6**	0	0	**1**	**1**	0	0	0	0	**11**
Total Volume	2	11	1	14	0	14	1	15	0	0	1	1	0	0	0	0	30
% App. Total	14.3	78.6	7.1		0	93.3	6.7		0	0	100		0	0	0		
PHF	.250	.550	.250	.700	.000	.700	.250	.625	.000	.000	.250	.250	.000	.000	.000	.000	.682

Exhibit E-2

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave AM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	1	1	3
07:15 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2
07:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2
07:45 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	0	0	0	1	1	4
Total	0	0	0	0	0	0	0	0	4	4	0	0	0	3	3	0	0	0	4	4	11
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	4	4	0	0	0	3	3	0	0	0	4	4	11
Apprch %	0	0	0	0		0	0	0	100		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	36.4	36.4	0	0	0	27.3	27.3	0	0	0	36.4	36.4	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit E-3

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave AM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Cars & Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
07:00 AM	0	79	13	0	92	11	52	1	0	64	17	2	11	0	30	1	0	0	0	1	187
07:15 AM	2	96	20	0	118	8	53	4	0	65	19	0	11	0	30	0	3	1	0	4	217
07:30 AM	4	111	17	0	132	11	51	1	0	63	12	1	12	0	25	1	3	1	0	5	225
07:45 AM	5	149	21	0	175	8	77	5	0	90	13	0	13	0	26	2	2	6	0	10	301
Total	11	435	71	0	517	38	233	11	0	282	61	3	47	0	111	4	8	8	0	20	930
08:00 AM	10	144	21	0	175	14	87	5	0	106	14	3	11	0	28	3	2	8	0	13	322
08:15 AM	8	153	27	0	188	7	95	4	0	106	18	4	11	0	33	2	3	5	0	10	337
08:30 AM	10	154	13	0	177	5	86	3	0	94	13	1	10	0	24	4	2	8	0	14	309
08:45 AM	19	182	28	0	229	17	99	4	0	120	19	2	15	0	36	3	1	6	0	10	395
Total	47	633	89	0	769	43	367	16	0	426	64	10	47	0	121	12	8	27	0	47	1363
Grand Total	58	1068	160	0	1286	81	600	27	0	708	125	13	94	0	232	16	16	35	0	67	2293
Apprch %	4.5	83	12.4	0		11.4	84.7	3.8	0		53.9	5.6	40.5	0		23.9	23.9	52.2	0		
Total %	2.5	46.6	7	0	56.1	3.5	26.2	1.2	0	30.9	5.5	0.6	4.1	0	10.1	0.7	0.7	1.5	0	2.9	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	10	144	21	175	14	87	**5**	106	14	3	11	28	3	2	**8**	13	322
08:15 AM	8	153	27	188	7	95	4	106	18	**4**	11	33	2	**3**	5	10	337
08:30 AM	10	154	13	177	5	86	3	94	13	1	10	24	**4**	2	8	**14**	309
08:45 AM	**19**	**182**	**28**	**229**	**17**	**99**	4	**120**	**19**	2	**15**	**36**	3	1	6	10	**395**
Total Volume	47	633	89	769	43	367	16	426	64	10	47	121	12	8	27	47	1363
% App. Total	6.1	82.3	11.6		10.1	86.2	3.8		52.9	8.3	38.8		25.5	17	57.4		
PHF	.618	.870	.795	.840	.632	.927	.800	.888	.842	.625	.783	.840	.750	.667	.844	.839	.863

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	10	144	21	175	14	87	**5**	106	14	3	11	28	3	2	**8**	13	322
08:15 AM	8	153	27	188	7	95	4	106	18	**4**	11	33	2	**3**	5	10	337
08:30 AM	10	154	13	177	5	86	3	94	13	1	10	24	**4**	2	8	**14**	309
08:45 AM	**19**	**182**	**28**	**229**	**17**	**99**	4	**120**	**19**	2	**15**	**36**	3	1	6	10	**395**
Total Volume	47	633	89	769	43	367	16	426	64	10	47	121	12	8	27	47	1363
% App. Total	6.1	82.3	11.6		10.1	86.2	3.8		52.9	8.3	38.8		25.5	17	57.4		
PHF	.618	.870	.795	.840	.632	.927	.800	.888	.842	.625	.783	.840	.750	.667	.844	.839	.863

Exhibit E-4

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave PM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Cars

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
04:00 PM	23	171	12	0	206	21	227	21	0	269	13	2	18	0	33	8	5	27	0	40	548
04:15 PM	17	205	15	0	237	14	233	29	0	276	25	7	19	0	51	9	7	22	0	38	602
04:30 PM	24	197	17	0	238	19	248	20	0	287	14	4	15	0	33	8	3	24	0	35	593
04:45 PM	19	174	10	0	203	12	204	21	0	237	12	3	13	0	28	7	6	18	0	31	499
Total	83	747	54	0	884	66	912	91	0	1069	64	16	65	0	145	32	21	91	0	144	2242
05:00 PM	18	161	11	0	190	8	259	23	0	290	13	4	15	0	32	9	6	24	0	39	551
05:15 PM	11	197	17	0	225	11	241	15	0	267	22	3	8	0	33	11	1	22	0	34	559
05:30 PM	18	155	15	0	188	17	184	26	0	227	23	3	9	0	35	8	3	19	0	30	480
05:45 PM	16	169	11	0	196	10	163	19	0	192	17	2	5	0	24	12	3	26	0	41	453
Total	63	682	54	0	799	46	847	83	0	976	75	12	37	0	124	40	13	91	0	144	2043
Grand Total	146	1429	108	0	1683	112	1759	174	0	2045	139	28	102	0	269	72	34	182	0	288	4285
Apprch %	8.7	84.9	6.4	0		5.5	86	8.5	0		51.7	10.4	37.9	0		25	11.8	63.2	0		
Total %	3.4	33.3	2.5	0	39.3	2.6	41.1	4.1	0	47.7	3.2	0.7	2.4	0	6.3	1.7	0.8	4.2	0	6.7	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	17	**205**	15	237	14	233	**29**	276	**25**	**7**	**19**	**51**	**9**	**7**	22	38	**602**
04:30 PM	**24**	197	**17**	**238**	**19**	248	20	287	14	4	15	33	8	3	**24**	35	593
04:45 PM	19	174	10	203	12	204	21	237	12	3	13	28	7	6	18	31	499
05:00 PM	18	161	11	190	8	**259**	23	**290**	13	4	15	32	9	6	24	**39**	551
Total Volume	78	737	53	868	53	944	93	1090	64	18	62	144	33	22	88	143	2245
% App. Total	9	84.9	6.1		4.9	86.6	8.5		44.4	12.5	43.1		23.1	15.4	61.5		
PHF	.813	.899	.779	.912	.697	.911	.802	.940	.640	.643	.816	.706	.917	.786	.917	.917	.932

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	17	**205**	15	237	14	233	**29**	276	**25**	**7**	**19**	**51**	**9**	**7**	22	38	**602**
04:30 PM	**24**	197	**17**	**238**	**19**	248	20	287	14	4	15	33	8	3	**24**	35	593
04:45 PM	19	174	10	203	12	204	21	237	12	3	13	28	7	6	18	31	499
05:00 PM	18	161	11	190	8	**259**	23	**290**	13	4	15	32	9	6	24	**39**	551
Total Volume	78	737	53	868	53	944	93	1090	64	18	62	144	33	22	88	143	2245
% App. Total	9	84.9	6.1		4.9	86.6	8.5		44.4	12.5	43.1		23.1	15.4	61.5		
PHF	.813	.899	.779	.912	.697	.911	.802	.940	.640	.643	.816	.706	.917	.786	.917	.917	.932

Exhibit E-5

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave PM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
04:00 PM	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	0	0	1	0	1	5
04:15 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
04:30 PM	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
04:45 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	5	0	0	5	0	6	0	0	6	0	0	0	0	0	0	0	1	0	1	12
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
05:30 PM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	2	0	0	3	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	6
Grand Total	1	7	0	0	8	0	9	0	0	9	0	0	0	0	0	0	0	1	0	1	18
Apprch %	12.5	87.5	0	0		0	100	0	0		0	0	0	0		0	0	100	0		
Total %	5.6	38.9	0	0	44.4	0	50	0	0	50	0	0	0	0	0	0	0	5.6	0	5.6	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	1	0	1	0	**3**	0	**3**	0	0	0	0	0	0	**1**	**1**	**5**
04:15 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
04:30 PM	0	**2**	0	**2**	0	1	0	1	0	0	0	0	0	0	0	0	3
04:45 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
Total Volume	0	5	0	5	0	6	0	6	0	0	0	0	0	0	1	1	12
% App. Total	0	100	0		0	100	0		0	0	0		0	0	100		
PHF	.000	.625	.000	.625	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.250	.250	.600
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	1	0	1	0	**3**	0	**3**	0	0	0	0	0	0	**1**	**1**	**5**
04:15 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
04:30 PM	0	**2**	0	**2**	0	1	0	1	0	0	0	0	0	0	0	0	3
04:45 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
Total Volume	0	5	0	5	0	6	0	6	0	0	0	0	0	0	1	1	12
% App. Total	0	100	0		0	100	0		0	0	0		0	0	100		
PHF	.000	.625	.000	.625	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.250	.250	.600

Exhibit E-6

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave PM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Pedestrians

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
04:15 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	0	0	0	1	1	4
04:30 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2
Total	0	0	0	0	0	0	0	0	6	6	0	0	0	2	2	0	0	0	2	2	10
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	5	5	0	0	0	1	1	0	0	0	0	0	6
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
05:45 PM	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	5
Total	0	0	0	0	0	0	0	0	10	10	0	0	0	2	2	0	0	0	1	1	13
Grand Total	0	0	0	0	0	0	0	0	16	16	0	0	0	4	4	0	0	0	3	3	23
Apprch %	0	0	0	0		0	0	0	100		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	69.6	69.6	0	0	0	17.4	17.4	0	0	0	13	13	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Exhibit E-7

Peggy Malone & Associates
(888) 247-8602

File Name : Settlers Market Blvd & Monticello Ave PM
Site Code :
Start Date : 5/19/2021
Page No : 1

Groups Printed- Cars & Trucks

	Monticello Ave Eastbound					Monticello Ave Westbound					Settlers Market Blvd Northbound					Settlers Market Blvd Southbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
04:00 PM	23	172	12	0	207	21	230	21	0	272	13	2	18	0	33	8	5	28	0	41	553
04:15 PM	17	206	15	0	238	14	234	29	0	277	25	7	19	0	51	9	7	22	0	38	604
04:30 PM	24	199	17	0	240	19	249	20	0	288	14	4	15	0	33	8	3	24	0	35	596
04:45 PM	19	175	10	0	204	12	205	21	0	238	12	3	13	0	28	7	6	18	0	31	501
Total	83	752	54	0	889	66	918	91	0	1075	64	16	65	0	145	32	21	92	0	145	2254
05:00 PM	18	162	11	0	191	8	259	23	0	290	13	4	15	0	32	9	6	24	0	39	552
05:15 PM	11	197	17	0	225	11	244	15	0	270	22	3	8	0	33	11	1	22	0	34	562
05:30 PM	19	156	15	0	190	17	184	26	0	227	23	3	9	0	35	8	3	19	0	30	482
05:45 PM	16	169	11	0	196	10	163	19	0	192	17	2	5	0	24	12	3	26	0	41	453
Total	64	684	54	0	802	46	850	83	0	979	75	12	37	0	124	40	13	91	0	144	2049
Grand Total	147	1436	108	0	1691	112	1768	174	0	2054	139	28	102	0	269	72	34	183	0	289	4303
Apprch %	8.7	84.9	6.4	0		5.5	86.1	8.5	0		51.7	10.4	37.9	0		24.9	11.8	63.3	0		
Total %	3.4	33.4	2.5	0	39.3	2.6	41.1	4	0	47.7	3.2	0.7	2.4	0	6.3	1.7	0.8	4.3	0	6.7	

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	23	172	12	207	**21**	230	21	272	13	2	18	33	8	5	**28**	**41**	553
04:15 PM	17	**206**	15	238	14	234	**29**	277	**25**	**7**	**19**	**51**	**9**	**7**	22	38	**604**
04:30 PM	**24**	199	**17**	**240**	19	**249**	20	**288**	14	4	15	33	8	3	24	35	596
04:45 PM	19	175	10	204	12	205	21	238	12	3	13	28	7	6	18	31	501
Total Volume	83	752	54	889	66	918	91	1075	64	16	65	145	32	21	92	145	2254
% App. Total	9.3	84.6	6.1		6.1	85.4	8.5		44.1	11	44.8		22.1	14.5	63.4		
PHF	.865	.913	.794	.926	.786	.922	.784	.933	.640	.571	.855	.711	.889	.750	.821	.884	.933

	Monticello Ave Eastbound				Monticello Ave Westbound				Settlers Market Blvd Northbound				Settlers Market Blvd Southbound				
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	23	172	12	207	**21**	230	21	272	13	2	18	33	8	5	**28**	**41**	553
04:15 PM	17	**206**	15	238	14	234	**29**	277	**25**	**7**	**19**	**51**	**9**	**7**	22	38	**604**
04:30 PM	**24**	199	**17**	**240**	19	**249**	20	**288**	14	4	15	33	8	3	24	35	596
04:45 PM	19	175	10	204	12	205	21	238	12	3	13	28	7	6	18	31	501
Total Volume	83	752	54	889	66	918	91	1075	64	16	65	145	32	21	92	145	2254
% App. Total	9.3	84.6	6.1		6.1	85.4	8.5		44.1	11	44.8		22.1	14.5	63.4		
PHF	.865	.913	.794	.926	.786	.922	.784	.933	.640	.571	.855	.711	.889	.750	.821	.884	.933

Exhibit E-8

CHANGE INTERVAL CALCULATOR - USER GUIDE

This worksheet is to be used as a tool to calculate yellow change and red clearance intervals at signalized intersections. The cell formulas embedded into this worksheet calculate the yellow change and red clearance intervals per VDOT Central Office Traffic Engineering Memorandum XXXX, dated XX/XX/XXXX. Use the following instructions to fill in the appropriate information in the highlighted cells. Additional commentary and/or rationale for engineering judgment decisions should be included in the appropriate "Comments" sections.

Change Interval Summary

Intersection	Enter the names and route numbers of the intersection roadways.
North/South	Enter the names and route numbers of the north/south roadways.
East/West	Enter the names and route numbers of the east/west roadways.
Intersection Node	Enter the VDOT node reference number.
Operations Region	Select the VDOT Operations Region in which the signal is located from the dropdown menu.
Calculated By	Enter the name or initials of the person performing the calculations.
Date	Enter the date the calculations are being performed.

*The information entered for the cells above automatically populates the PHASE tabs.

Direction & Movement	Automatically populates based on PHASE tabs "Direction" & "Movement" input.
Calculated Intervals	Automatically populates based on PHASE tabs "Y" and "R" output.
Combination Check	Automatically populates based on PHASE tabs "Signal Phasing" input.
Controller Input	Enter the yellow and red value to be implemented for the phase.

Change Interval Calculator

Approach	Automatically populates based on "Direction" input.
Direction	Select the direction of travel for the evaluated phase from the dropdown menu.
Speed Limit (mph)	Select the posted (or appropriate assumed) speed limit for the evaluated phase from the dropdown menu. If the phase is not applicable, leave blank.
Phase Number	Select the number (1-8) for the evaluated phase from the dropdown menu. If the phase is not applicable, leave blank. (See PHASE TEMPLATE tab for typical phase number assignments.)
Movement	Select the movement type for the evaluated phase from the dropdown menu. If the phase is not applicable, leave blank.
Signal Phasing	Select the left-turn movement or split phasing from the dropdown menu. If the phase is not applicable, leave blank.

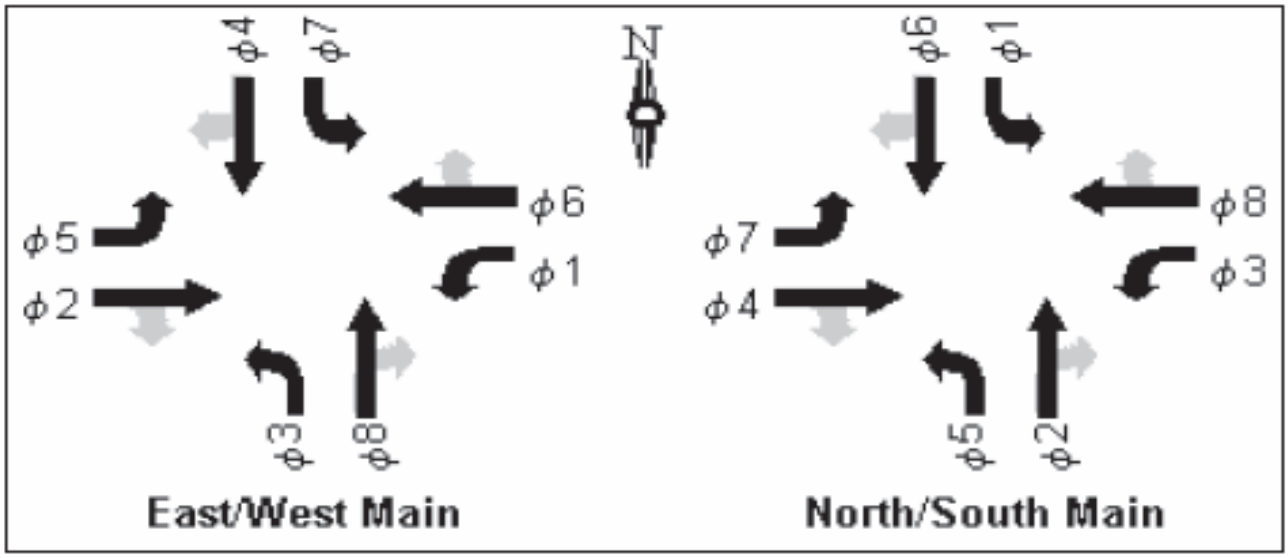
Yellow Change Interval

Perception-Reaction Time, t (sec)	This value has been assumed as 1 second and should not be changed.
Deceleration Rate, a (ft/s^2)	This value has been assumed as 10 ft/s^2 and should not be changed.
Approach Speed, V (ft/s)	Select "Speed Limit" or "Measured" from the dropdown menu. If "Speed Limit" is selected, the approach speed will automatically populate in ft/s based on "Movement" input. If "Measured" is selected, enter the mph value directly underneath. The approach speed will automatically populate in ft/s. If the phase is not applicable, leave blank.
Approach Grade, g (percent)	Select the approach grade in whole percent (upgrade as positive, downgrade as negative) from the dropdown menu. This value should be applied to all phases on the same approach. If the approach grade is level or the phase is not applicable, enter "0".
Yellow Change Interval, Y (sec)	Automatically calculates to the nearest 0.1 second based on input.

Red Clearance Interval

Intersection Width, w (ft)	Select the intersection width for the evaluated phase from the dropdown menu. If the phase is not applicable, leave blank.
Length of Vehicle, L (ft)	This value has been assumed as 20 feet. This value may be changed as engineering judgment deems appropriate.
Approach Speed, V (ft/s)	Select "Speed Limit" or "Measured" from the dropdown menu. If "Speed Limit" is selected, the approach speed will automatically populate in ft/s based on "Movement" input. If "Measured" is selected, enter the mph value directly underneath. The approach speed will automatically populate in ft/s. If the phase is not applicable, leave blank.
Red Clearance Interval, R (sec)	Automatically calculates to the nearest 0.1 second based on input.

Exhibit Q1-1



Source: Trafficware Synchro Studio 7, Traffic Signal Software - User Guide (1993 - 2006)

CHANGE INTERVAL SUMMARY

Intersection:	Rt 321 and Windsor Meade
North/South:	Windsor Meade
East/West:	Rt 321
Intersection Node:	
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Phase	Direction & Movement	Calculated Intervals		Combination Check		Controller Input	
		Yellow	Red	Yellow	Red	Yellow	Red
1	-	-	-	-	-		
2	EBThru	4.9	1.0	4.9	1.0	5.00	1
3	-	-	-	-	-		
4	SBLeft	3.6	3.5	3.6	3.5	3.50	3.5
5	EBLeft	4.0	3.8	4.0	3.8	4.00	4
6	WBThru	4.9	1.0	4.9	1.0	5.00	1
7	-	-	-	-	-		
8	-	-	-	-	-		

Michael J Miller
2013.06.11 12:15:49 -04'00'

VDOT Eastern Region Operations
Signal System Engineer

Field Verification

Entered By:	DB Nelms
Date:	
Verified By:	K. Todd Morrison, TSOS
Date:	
Scanned By:	
Date:	

Field Notes:

CHANGE INTERVAL CALCULATOR

Intersection:	Rt 321 and Windsor Meade
North/South:	Windsor Meade
East/West:	Rt 321
Intersection Node:	0
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Approach:	-	Phase Number:	
Direction:		Movement:	
Speed Limit (mph):		Signal Phasing:	

Yellow Change Interval

t (sec)	1		
a (ft/s^2)	10		
V (ft/s)	0		
			mph
g (percent)	0		
Y (sec)		*3.0*	

Comments:

Red Clearance Interval

w (ft)			
L (ft)	20		
V (ft/s)	0		
			mph
R (sec)		*1.0*	

Comments:

Additional Comments:

Exhibit Q1-4

CHANGE INTERVAL CALCULATOR

Intersection:	Rt 321 and Windsor Meade
North/South:	Windsor Meade
East/West:	Rt 321
Intersection Node:	0
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Approach:	Rt 321	Phase Number:	2
Direction:	EB	Movement:	Thru
Speed Limit (mph):	45	Signal Phasing:	

Yellow Change Interval

t (sec)	1		
a (ft/s^2)	10		
V (ft/s)	76.44	Measured	
		52	mph
g (percent)	0		
Y (sec)		*4.9*	

Comments:

Red Clearance Interval

w (ft)	100		
L (ft)	20		
V (ft/s)	76.44	Measured	
		52	mph
R (sec)		*1.0*	

Comments:

Additional Comments:

Exhibit Q1-5

CHANGE INTERVAL CALCULATOR

Intersection:	Rt 321 and Windsor Meade
North/South:	Windsor Meade
East/West:	Rt 321
Intersection Node:	0
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Approach:	-	Phase Number:	
Direction:		Movement:	
Speed Limit (mph):		Signal Phasing:	

Yellow Change Interval

t (sec)	1		
a (ft/s^2)	10		
V (ft/s)	0		
			mph
g (percent)	0		
Y (sec)		*3.0*	

Comments:

Red Clearance Interval

w (ft)			
L (ft)	20		
V (ft/s)	0		
			mph
R (sec)		*1.0*	

Comments:

Additional Comments:

CHANGE INTERVAL CALCULATOR

Intersection:	Rt 321 and Windsor Meade
North/South:	Windsor Meade
East/West:	Rt 321
Intersection Node:	0
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Approach:	Windsor Meade	Phase Number:	4
Direction:	SB	Movement:	Left
Speed Limit (mph):	40	Signal Phasing:	split

Yellow Change Interval

t (sec)	1		
a (ft/s^2)	10		
V (ft/s)	51.45	Speed Limit	
			mph
g (percent)	0		
Y (sec)		*3.6*	

Comments:

Red Clearance Interval

w (ft)	110		
L (ft)	20		
V (ft/s)	29.4	Speed Limit	
			mph
R (sec)		*3.5*	

Comments:

Additional Comments:

CHANGE INTERVAL CALCULATOR

Intersection:	Rt 321 and Windsor Meade
North/South:	Windsor Meade
East/West:	Rt 321
Intersection Node:	0
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Approach:	Rt 321	Phase Number:	5
Direction:	EB	Movement:	Left
Speed Limit (mph):	45	Signal Phasing:	prot

Yellow Change Interval

t (sec)	1		
a (ft/s^2)	10		
V (ft/s)	58.8	Speed Limit	
			mph
g (percent)	0		
Y (sec)		*4.0*	

Comments:

Red Clearance Interval

w (ft)	120		
L (ft)	20		
V (ft/s)	29.4	Speed Limit	
			mph
R (sec)		*3.8*	

Comments:

Additional Comments:

CHANGE INTERVAL CALCULATOR

Intersection:	Rt 321 and Windsor Meade
North/South:	Windsor Meade
East/West:	Rt 321
Intersection Node:	0
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Approach:	Rt 321	Phase Number:	6
Direction:	WB	Movement:	Thru
Speed Limit (mph):	45	Signal Phasing:	

Yellow Change Interval

t (sec)	1		
a (ft/s^2)	10		
V (ft/s)	76.44	Measured	
		52	mph
g (percent)	0		
Y (sec)		*4.9*	

Comments:

Red Clearance Interval

w (ft)	100		
L (ft)	20		
V (ft/s)	76.44	Measured	
		52	mph
R (sec)		*1.0*	

Comments:

Additional Comments:

Exhibit Q1-9

CHANGE INTERVAL CALCULATOR

Intersection:	Rt 321 and Windsor Meade
North/South:	Windsor Meade
East/West:	Rt 321
Intersection Node:	0
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Approach:	-	Phase Number:	
Direction:		Movement:	
Speed Limit (mph):		Signal Phasing:	

Yellow Change Interval

t (sec)	1		
a (ft/s^2)	10		
V (ft/s)	0		
			mph
g (percent)	0		
Y (sec)		*3.0*	

Comments:

Red Clearance Interval

w (ft)			
L (ft)	20		
V (ft/s)	0		
			mph
R (sec)		*1.0*	

Comments:

Additional Comments:

Exhibit Q1-10

CHANGE INTERVAL CALCULATOR

Intersection:	Rt 321 and Windsor Meade
North/South:	Windsor Meade
East/West:	Rt 321
Intersection Node:	0
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Approach:	-	Phase Number:	
Direction:		Movement:	
Speed Limit (mph):		Signal Phasing:	

Yellow Change Interval

t (sec)	1		
a (ft/s^2)	10		
V (ft/s)	0		
			mph
g (percent)	0		
Y (sec)		*3.0*	

Comments:

Red Clearance Interval

w (ft)			
L (ft)	20		
V (ft/s)	0		
			mph
R (sec)		*1.0*	

Comments:

Additional Comments:

Exhibit Q1-11

VDOT
Virginia Department of Transportation

CHANGE INTERVAL SUMMARY

Intersection:	Rt 321 and Rt 199
North/South:	Rt 199
East/West:	Rt 321
Intersection Node:	
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Phase	Direction & Movement	Calculated Intervals		Combination Check		Controller Input	
		Yellow	Red	Yellow	Red	Yellow	Red
1	WBLeft	3.2	4.7	3.2	4.7	3.00	4.5
2	EBThru	4.9	1.8	4.9	1.8	5.00	2
3	NBLeft	3.0	4.0	3.0	4.0	3.00	4
4	-	-	-	-	-		
5	EBLeft	3.3	4.3	3.3	4.3	3.50	4.5
6	WBThru	4.9	1.9	4.9	1.9	5.00	2
7	SBLeft	3.0	4.6	3.0	4.6	3.00	4.5
8	-	-	-	-	-		

COMMONWEALTH OF VIRGINIA
MICHAEL JOHN MILLER
Lic. No. 039695
PROFESSIONAL ENGINEER

Michael J Miller
2014.06.13 13:32:25 -04'00'

VDOT Eastern Region Operations
Signal System Engineer

Field Verification

Entered By:	DB Nelms
Date:	
Verified By:	K. Todd Morrison, TSOS
Date:	
Scanned By:	
Date:	

Field Notes:

Due to the geometric design and size of this intersection a speed study was done to establish free flow 85th percentile speeds for phases 1,3,5 and 7. Clearance calculations were made using this data

Speed study on file

VDOT
Virginia Department of Transportation

CHANGE INTERVAL CALCULATOR

Intersection:	Rt 321 and Rt 199
North/South:	Rt 199
East/West:	Rt 321
Intersection Node:	0
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Approach:	Rt 321	Phase Number:	1
Direction:	WB	Movement:	Left
Speed Limit (mph):	45	Signal Phasing:	prot

Yellow Change Interval

t (sec)	1		
a (ft/s^2)	10		
V (ft/s)	42.63	Measured	
		29	mph
g (percent)	0		
Y (sec)		*3.2*	

Comments:

Red Clearance Interval

w (ft)	220		
L (ft)	20		
V (ft/s)	42.63	Measured	
		29	mph
R (sec)		*4.7*	

Comments:

Additional Comments:

Exhibit Q2-2

VDOT
Virginia Department of Transportation

CHANGE INTERVAL CALCULATOR

Intersection:	Rt 321 and Rt 199
North/South:	Rt 199
East/West:	Rt 321
Intersection Node:	0
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Approach:	Rt 321	Phase Number:	2
Direction:	EB	Movement:	Thru
Speed Limit (mph):	45	Signal Phasing:	

Yellow Change Interval

t (sec)	1		
a (ft/s^2)	10		
V (ft/s)	76.44	Measured	
		52	mph
g (percent)	0		
Y (sec)		*4.9*	

Comments:

Red Clearance Interval

w (ft)	190		
L (ft)	20		
V (ft/s)	76.44	Measured	
		52	mph
R (sec)		*1.8*	

Comments:

Additional Comments:

Exhibit Q2-3

VDOT
Virginia Department of Transportation

CHANGE INTERVAL CALCULATOR

Intersection:	Rt 321 and Rt 199
North/South:	Rt 199
East/West:	Rt 321
Intersection Node:	0
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Approach:	Rt 199	Phase Number:	3
Direction:	NB	Movement:	Left
Speed Limit (mph):	35	Signal Phasing:	split

Yellow Change Interval

t (sec)	1		
a (ft/s^2)	10		
V (ft/s)	39.69	Measured	
		27	mph
g (percent)	0		
Y (sec)		*3.0*	

Comments:

Red Clearance Interval

w (ft)	175		
L (ft)	20		
V (ft/s)	39.69	Measured	
		27	mph
R (sec)		*4.0*	

Comments:

Additional Comments:

Exhibit Q2-4

VDOT
Virginia Department of Transportation

CHANGE INTERVAL CALCULATOR

Intersection:	Rt 321 and Rt 199
North/South:	Rt 199
East/West:	Rt 321
Intersection Node:	0
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Approach:	Rt 321	Phase Number:	5
Direction:	EB	Movement:	Left
Speed Limit (mph):	45	Signal Phasing:	prot

Yellow Change Interval

t (sec)	1		
a (ft/s^2)	10		
V (ft/s)	45.57	Measured	
		31	mph
g (percent)	0		
Y (sec)		*3.3*	

Comments:

Red Clearance Interval

w (ft)	220		
L (ft)	20		
V (ft/s)	45.57	Measured	
		31	mph
R (sec)		*4.3*	

Comments:

Additional Comments:

Exhibit Q2-5

VDOT
Virginia Department of Transportation

CHANGE INTERVAL CALCULATOR

Intersection:	Rt 321 and Rt 199
North/South:	Rt 199
East/West:	Rt 321
Intersection Node:	0
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Approach:	Rt 321	Phase Number:	6
Direction:	WB	Movement:	Thru
Speed Limit (mph):	45	Signal Phasing:	

Yellow Change Interval

t (sec)	1		
a (ft/s^2)	10		
V (ft/s)	76.44	Measured	
		52	mph
g (percent)	0		
Y (sec)		*4.9*	

Comments:

Red Clearance Interval

w (ft)	195		
L (ft)	20		
V (ft/s)	76.44	Measured	
		52	mph
R (sec)		*1.9*	

Comments:

Additional Comments:

VDOT
Virginia Department of Transportation

CHANGE INTERVAL CALCULATOR

Intersection:	Rt 321 and Rt 199
North/South:	Rt 199
East/West:	Rt 321
Intersection Node:	0
Operations Region:	Eastern
Calculated By:	D.B.Nelms
Date:	Thursday, April 04, 2013

Approach:	Rt 199	Phase Number:	7
Direction:	SB	Movement:	Left
Speed Limit (mph):	35	Signal Phasing:	split

Yellow Change Interval

t (sec)	1		
a (ft/s^2)	10		
V (ft/s)	35.28	Measured	
		24	mph
g (percent)	0		
Y (sec)		*3.0*	

Comments:

Red Clearance Interval

w (ft)	175		
L (ft)	20		
V (ft/s)	35.28	Measured	
		24	mph
R (sec)		*4.6*	

Comments:

Additional Comments:

Exhibit Q2-7

321 @ 199

Exhibit Q2-8

Tuesday, Mar 26, 2013 08:43 AM

Virginia Department of Transportation

Traffic Engineering

VDOT Yellow Change & Red Clearance Interval Calculator

COMMONWEALTH OF VIRGINIA
JOHN LAWRENCE BISNETT JR.
Lic. No. 054261
PROFESSIONAL ENGINEER

John L Bisnett
2020.12.03 15:14:14-05'00'

VDOT-ERO
Suffolk, Virginia
Installation & Maintenance

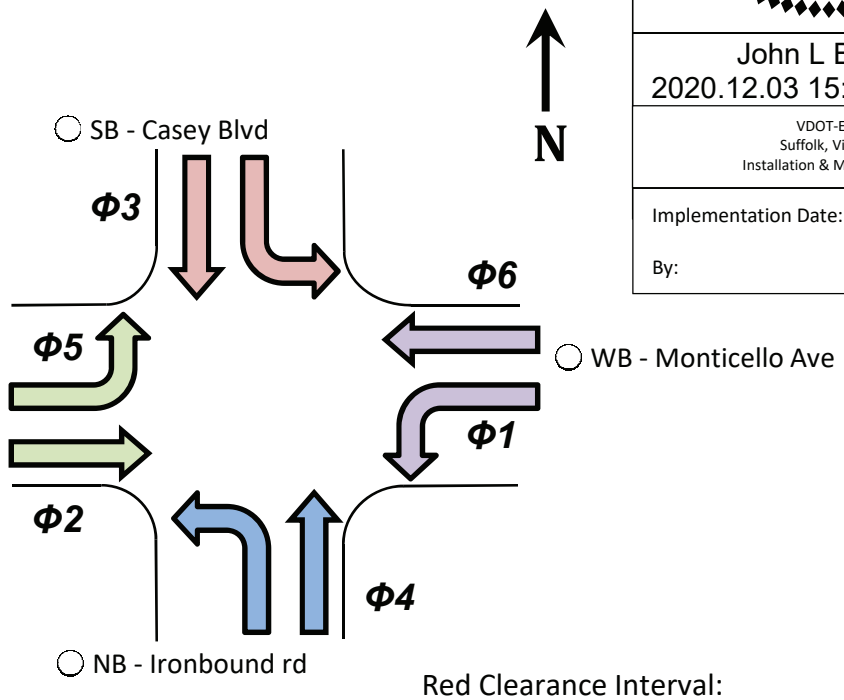
Implementation Date:

By:

Intersection Information:

Operations Region: Eastern
Locality: James City County
Intersection Node: N/A
Reference #: 095019
EB/WB Street: Monticello Ave - Route 321
NB Street: Ironbound rd - Route 615
SB Street: Casey Blvd - Route 1837

Additional Notes:



Yellow Change Interval:

$$Y = t + \frac{1.47 * V}{2a + 64.4g} \qquad a = 10\,ft/s^2 \qquad t = 1\,s$$

Red Clearance Interval:

$$R = \frac{w + L}{1.47 * V} - 1$$

V_{lts} is used in place of V for calculation of R_{lt}

Approach - Street - Movement	*V* (mph)*	*V data*	*g*	V_{LTS} (mph)*	*L* (ft)*	*w* (ft)*	*Y* (s)**	*R* (s)**
EB - Monticello Ave - Through	52	SL + 7	0.00		20	130	4.8	1.0 (1.0)
EB - Monticello Ave - Left	40	SL - 5	0.00	20	20	115	3.9	3.6
WB - Monticello Ave - Through	52	SL + 7	0.00		20	130	4.8	1.0 (1.0)
WB - Monticello Ave - Left	40	SL - 5	0.00	20	20	120	3.9	3.8
NB - Ironbound rd - Through	52	SL + 7	0.00		20	130	4.8	1.0 (1.0)
NB - Ironbound rd - Left	40	SL - 5	0.00	20	20	125	3.9	3.9
SB - Casey Blvd - Through	32	SL + 7	0.00		20	140	3.4	2.4
SB - Casey Blvd - Left	20	SL - 5	0.00	20	20	120	2.5 (3.0)	3.8

Engineering judgment applied for all numbers in red and italics. Provide supporting documentation.
** Calculated intervals in blue indicate values below the minimum required time. **

Phase | Street - Movement	Right Turn Overlap	Left Turn Phase Type	*Y* Output Phase Adjusted	*R* Output Phase Adjusted	Controller Input *Y*	Controller Input *R*
1 | WB - Monticello Ave - Left	B - NBR	Protected/Permissive	4.8	3.8	**4.8**	**3.8**
2 | EB - Monticello Ave - Through			4.8	3.8	**4.8**	**3.8**
3 | SB - Casey Blvd - Through + Left		Split - Shared Signal	3.4	3.8	**3.4**	**3.8**
4 | NB - Ironbound rd - Through + Left		Split - Shared Signal	4.8	3.9	**4.8**	**3.9**
5 | EB - Monticello Ave - Left	D - SBR	Protected	3.9	3.6	**3.9**	**3.6**
6 | WB - Monticello Ave - Through			4.8	3.8	**4.8**	**3.8**

Exhibit Q3-1

Variables Requiring Additional Documentation		
Approach	**Variable**	**Value**

**All values shown in red and italics on Page 1 require additional documentation in order to support the decision to use engineering judgment en lieu of parameters specified in TE 306.1.*

**Yellow and Red Intervals shown in blue on Page 1 illustrate calculated values that were below the minimum required values. The calculated value is shown outside the parentheses with the minimum required value enclosed in parentheses.

Additional Notes:

- This Clearance Interval is being developed as a phasing update for the mainline left turns. All the data for these calculations are obtained from the original clearance interval dated 2013. This would include grades, crossing distances, and speed limits.

- Rounded values per the TE-306.1 rounding conversion.

-No posted speed limit exists at the SB approach. Based on the characteristics of the roadway it is assumed speed limit of 25 mph. This is consistent with the clearance interval deployed in 2013

User Agreement:

This Yellow & Red Interval Calculation Tool (YRIC Tool) is provided to supplement but not replace or serve as a substitute for the exercise of Engineering Judgment, or any aspect thereof, in determining appropriate traffic signal interval calculations. Use of this YRIC Tool does not negate or eliminate the requirements or methodologies for calculating Yellow Change Red Clearance Intervals as specified in TE-306.1 or for Sealing and Signing of Plans and Documents by Licensed Professional Engineers as specified in TE-362.1.

The independent exercise of Engineering Judgment is expected and must be documented at all times while using this YRIC Tool.

In using this YRIC Tool, you acknowledge that you will:

- Adhere to all the requirements of TE-306.1 and TE-362.1;
- Validate the applicability of the location(s) being studied for use with the YRIC Tool;
- Exercise independent Engineering Judgment in calculating traffic signal intervals, and provide written justification for any deviations from the standard inputs for traffic signal interval calculations; and,
- Agree that it is your responsibility to understand fully the limitations of and assumptions underlying the YRIC tool and that you will not use it without the assistance of personnel with appropriate expertise.
- Accept all responsibility for review, application, and the use of the program output; and,
- Accept all responsibility for certification that said output meets provisions of any applicable design code, standard or any project specification.

Exhibit Q3-2

Virginia Department of Transportation

Traffic Engineering

VDOT Yellow Change & Red Clearance Interval Calculator

COMMONWEALTH OF VIRGINIA
JOHN LAWRENCE BISNETT JR.
Lic. No. 054261
PROFESSIONAL ENGINEER

John L Bisnett
2020.12.03 15:29:41-05'00'

VDOT-ERO
Suffolk, Virginia
Installation & Maintenance

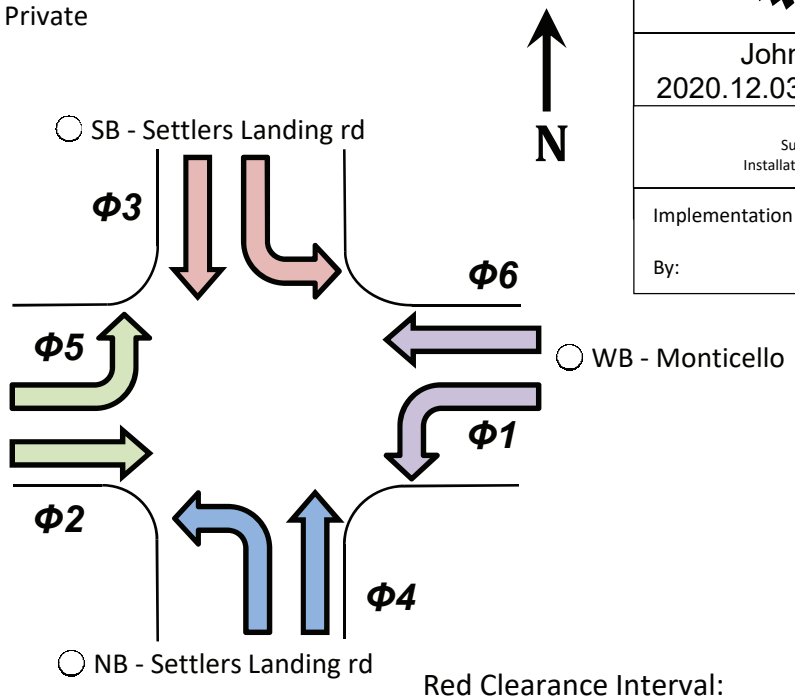
Implementation Date:

By:

Intersection Information:

Operations Region: Eastern
Locality: James City County
Intersection Node: N/A
Reference #: 095020
EB/WB Street: Monticello - Route 321
NB/SB Street: Settlers Landing rd - Route Private

Additional Notes:



Yellow Change Interval:

$$Y = t + \frac{1.47 * V}{2a + 64.4g} \qquad a = 10\,ft/s^2 \qquad t = 1\,s$$

Red Clearance Interval:

$$R = \frac{w + L}{1.47 * V} - 1$$

V_{lts} is used in place of V for calculation of R_{lt}

Approach - Street - Movement	*V* (mph)*	*V data*	*g*	V_{LTS} (mph)*	*L* (ft)*	*w* (ft)*	*Y* (s)**	*R* (s)**
EB - Monticello - Through	52	SL + 7	0.00		20	120	4.8	0.8 (1.0)
EB - Monticello - Left	40	SL - 5	0.00	20	20	125	3.9	3.9
WB - Monticello - Through	52	SL + 7	0.00		20	120	4.8	0.8 (1.0)
WB - Monticello - Left	40	SL - 5	0.00	20	20	120	3.9	3.8
NB - Settlers Landing rd - Through	*32*	Engr Jgmt	0.00		20	125	3.4	2.1
NB - Settlers Landing rd - Left	*20*	Engr Jgmt	0.00	20	20	135	2.5 (3.0)	4.3
SB - Settlers Landing rd - Through	*32*	Engr Jgmt	0.00		20	145	3.4	2.5
SB - Settlers Landing rd - Left	*20*	Engr Jgmt	0.00	20	20	140	2.5 (3.0)	4.4

Engineering judgment applied for all numbers in red and italics. Provide supporting documentation.

** Calculated intervals in blue indicate values below the minimum required time. **

Phase | Street - Movement	Right Turn Overlap	Left Turn Phase Type	*Y* Output Phase Adjusted	*R* Output Phase Adjusted	Controller Input *Y*	Controller Input *R*
1 | WB - Monticello - Left		Protected/Permissive	4.8	3.8	**4.8**	**3.8**
2 | EB - Monticello - Through			4.8	3.8	**4.8**	**3.8**
3 | SB - Settlers Landing rd - Through + Left		Split - Shared Signal	3.4	4.4	**3.4**	**4.4**
4 | NB - Settlers Landing rd - Through + Left		Split - Shared Signal	3.4	4.3	**3.4**	**4.3**
5 | EB - Monticello - Left	B - SBR	Protected	3.9	3.9	**3.9**	**3.9**
6 | WB - Monticello - Through			4.8	3.8	**4.8**	**3.8**

Exhibit Q4-1

Variables Requiring Additional Documentation		
Approach	**Variable**	**Value**
NB - Settlers Landing rd - Through	Approach Speed (V)	32
NB - Settlers Landing rd - Left	Approach Speed (V)	20
SB - Settlers Landing rd - Through	Approach Speed (V)	32
SB - Settlers Landing rd - Left	Approach Speed (V)	20

**All values shown in red and italics on Page 1 require additional documentation in order to support the decision to use engineering judgment en lieu of parameters specified in TE 306.1.*

**Yellow and Red Intervals shown in blue on Page 1 illustrate calculated values that were below the minimum required values. The calculated value is shown outside the parentheses with the minimum required value enclosed in parentheses.

Additional Notes:

-No posted speed limit exists at the SB and NB approaches. Based on the characteristics of the roadway it is assumed speed limit of 25 mph. This is consistent with the clearance interval deployed in 2013.

- This Clearance Interval is being developed as a phasing update for the mainline left turns. All the data for these calculations are obtained from the original clearance interval dated 2013. This would include grades, crossing distances, and speed limits.

- Rounded values per the TE-306.1 rounding conversion.

User Agreement:

This Yellow & Red Interval Calculation Tool (YRIC Tool) is provided to supplement but not replace or serve as a substitute for the exercise of Engineering Judgment, or any aspect thereof, in determining appropriate traffic signal interval calculations. Use of this YRIC Tool does not negate or eliminate the requirements or methodologies for calculating Yellow Change Red Clearance Intervals as specified in TE-306.1 or for Sealing and Signing of Plans and Documents by Licensed Professional Engineers as specified in TE-362.1.

The independent exercise of Engineering Judgment is expected and must be documented at all times while using this YRIC Tool.

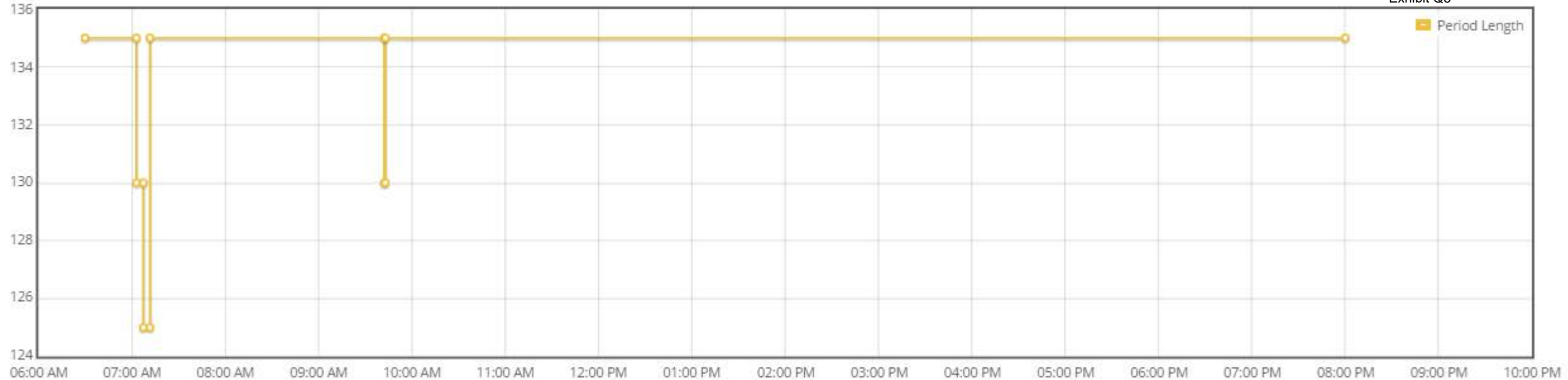
In using this YRIC Tool, you acknowledge that you will:

- Adhere to all the requirements of TE-306.1 and TE-362.1;
- Validate the applicability of the location(s) being studied for use with the YRIC Tool;
- Exercise independent Engineering Judgment in calculating traffic signal intervals, and provide written justification for any deviations from the standard inputs for traffic signal interval calculations; and,
- Agree that it is your responsibility to understand fully the limitations of and assumptions underlying the YRIC tool and that you will not use it without the assistance of personnel with appropriate expertise.
- Accept all responsibility for review, application, and the use of the program output; and,
- Accept all responsibility for certification that said output meets provisions of any applicable design code, standard or any project specification.

Exhibit Q4-2

Period Lengths

Exhibit Q5

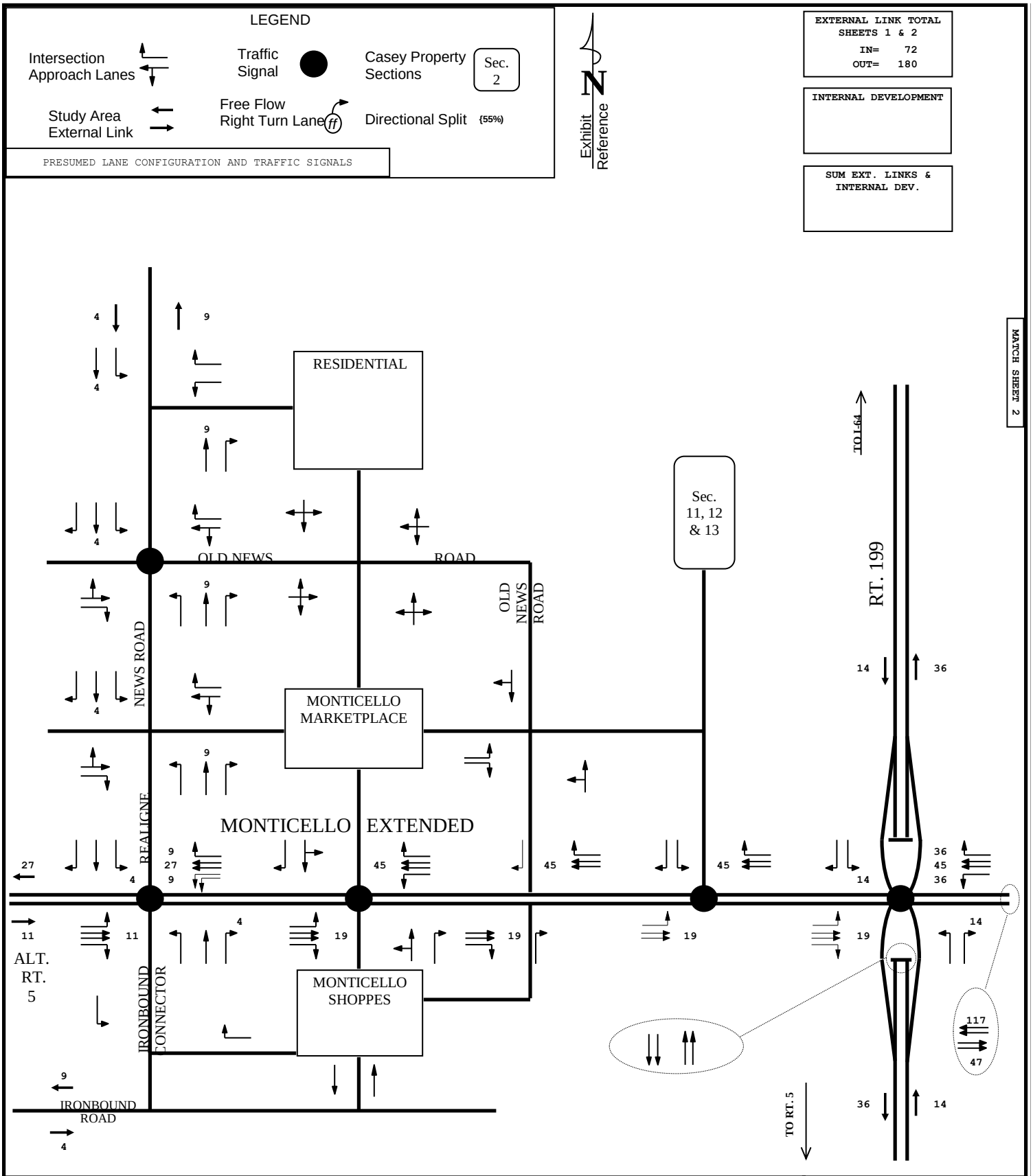


			WEEKDAY TRIP GENERATION						
			AM PEAK HOUR			PM PEAK HOUR			
Section			Enter	Exit	Total	Enter	Exit	Total	DAILY
Section 2 & 4 All Primary Trips			496	271		608	780	1388	
	External Link	% Distribution							
	Longhill Conn.	10%	50	27		61	78		
	Ironbound (east to Rt. 60)	5%	25	14		30	39		
	Monticello Ave. (W&M)	10%	50	27		61	78		
	Strawberry Plains Road	10%	50	27		61	78		
	Rt. 199 (south to Rt. 5)	20%	99	54		122	156		
	Ironbound Rd. (to Five Forks)	5%	25	14		30	39		
	Alt. Rt. 5	15%	74	41		91	117		
	News Road	5%	25	14		30	39		
	Rt. 199 (north to Rt. 60)	20%	99	54		122	156		
		100%	497	272		608	780		
Section 3 & 6 All Primary Trips			622	154		129	530	659	
	External Link	% Distribution							
	Longhill Conn.	20%	124	31		26	106		
	Ironbound (east to Rt. 60)	5%	31	8		6	27		
	Monticello Ave. (W&M)	10%	62	15		13	53		
	Strawberry Plains Road	10%	62	15		13	53		
	Rt. 199 (south to Rt. 5)	20%	124	31		26	106		
	Ironbound Rd. (to Five Forks)	5%	31	8		6	27		
	Alt. Rt. 5	15%	93	23		19	80		
	News Road	5%	31	8		6	27		
	Rt. 199 (north to Rt. 60)	10%	62	15		13	53		
		100%	620	154		128	532		
Section 7 & 8 All Primary Trips			71	180		143	78	221	
	External Link	% Distribution							
	Longhill Conn.	10%	7	18		14	8		
	Ironbound (east to Rt. 60)	5%	4	9		7	4		
	Monticello Ave. (W&M)	10%	7	18		14	8		
	Strawberry Plains Road	10%	7	18		14	8		
	Rt. 199 (south to Rt. 5)	20%	14	36		29	16		
	Ironbound Rd. (to Five Forks)	5%	4	9		7	4		
	Alt. Rt. 5	15%	11	27		21	12		
	News Road	5%	4	9		7	4		
	Rt. 199 (north to Rt. 60)	20%	14	36		29	16		
		100%	72	180		142	80		
		Sections 2,3,4,6,7,8 Subtotal	1,189	606	0	878	1,392	2,270	

NEW TOWN
OFF SITE TRIP DISTRIBUTION
SECTIONS 2,3,4,6,7,8

DRW Consultants, LLC
804-794-7312

Exhibit S1

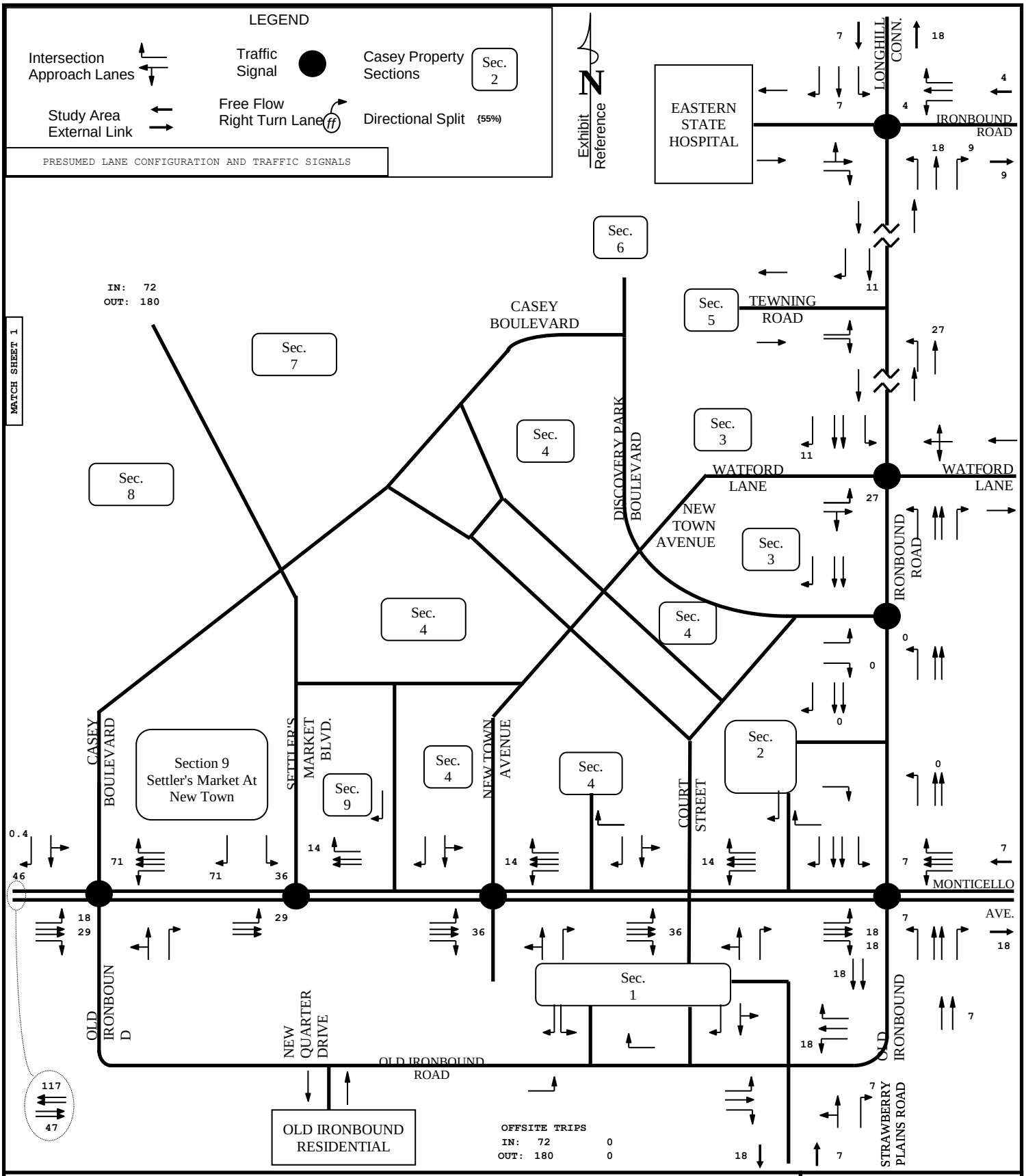


NEW TOWN SECTIONS 7 & 8
AM PEAK HOUR

DRW Consultants, LLC
804-794-7312

Exhibit T3

Sheet 1 of 2

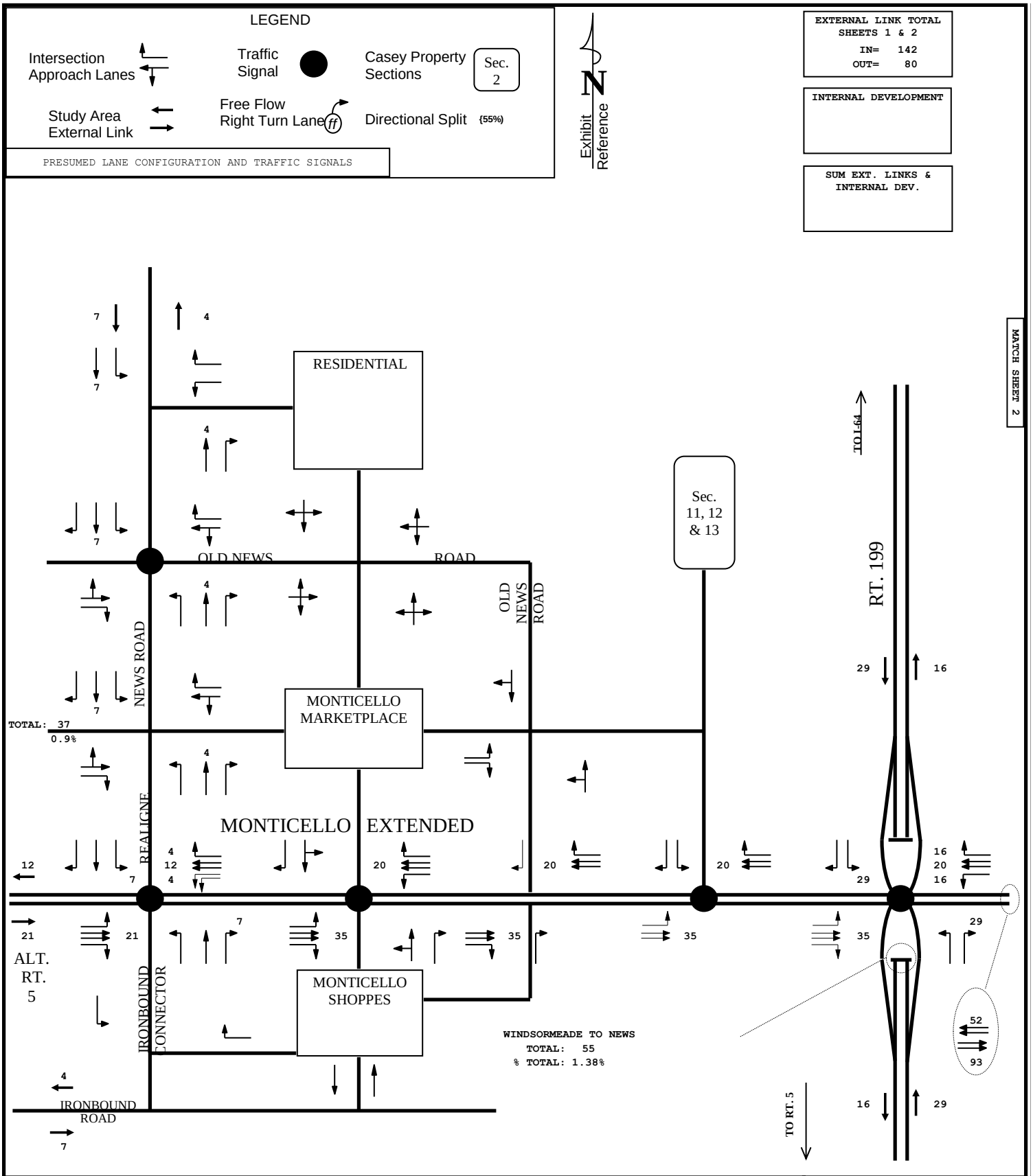


NEW TOWN SECTIONS 7 & 8
AM PEAK HOUR

DRW Consultants, LLC
804-794-7312

Exhibit T3

Sheet 2 of 2

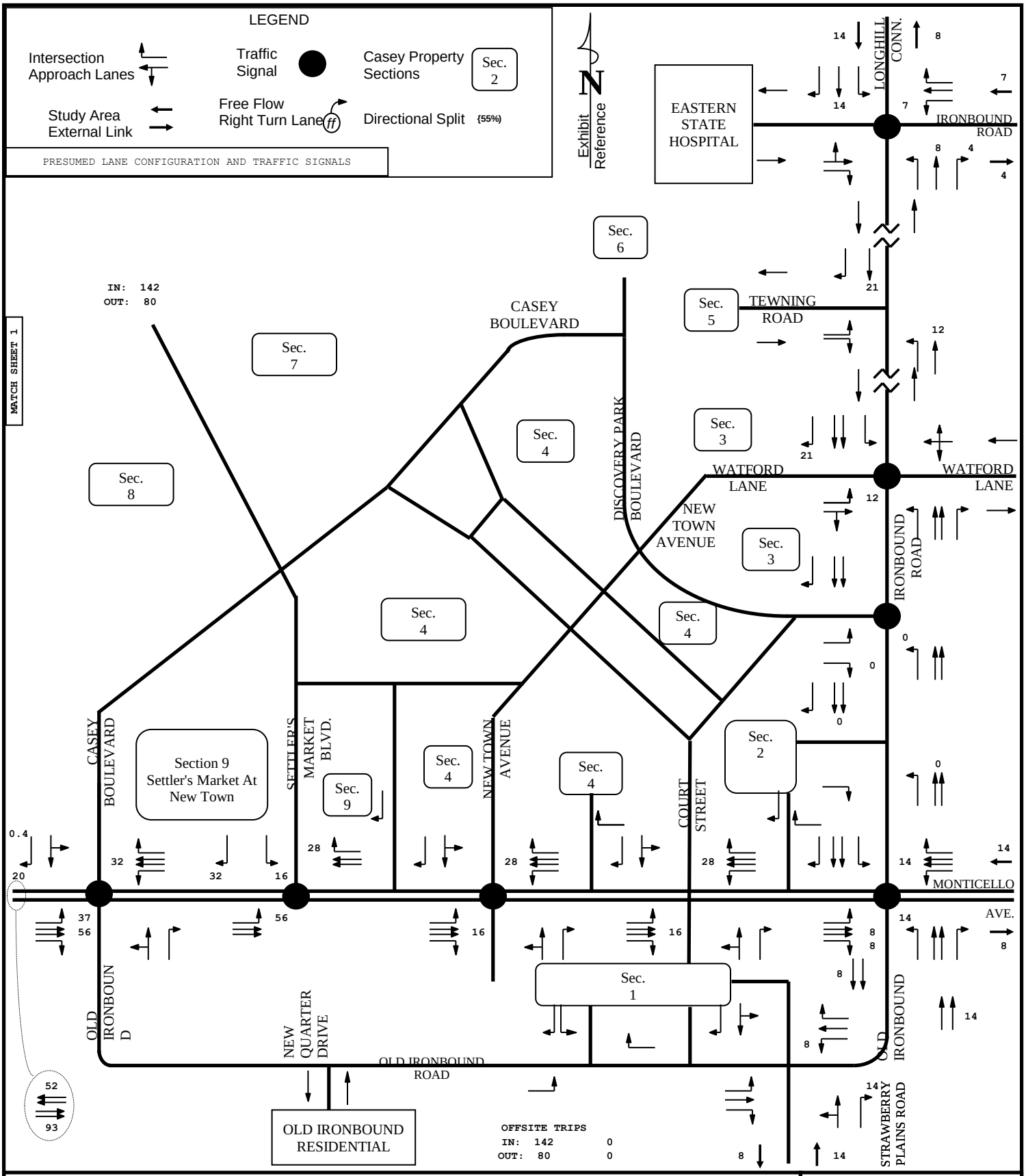


NEW TOWN SECTIONS 7 & 8
PM PEAK HOUR

DRW Consultants, LLC
804-794-7312

Exhibit U3

Sheet 1 of 2

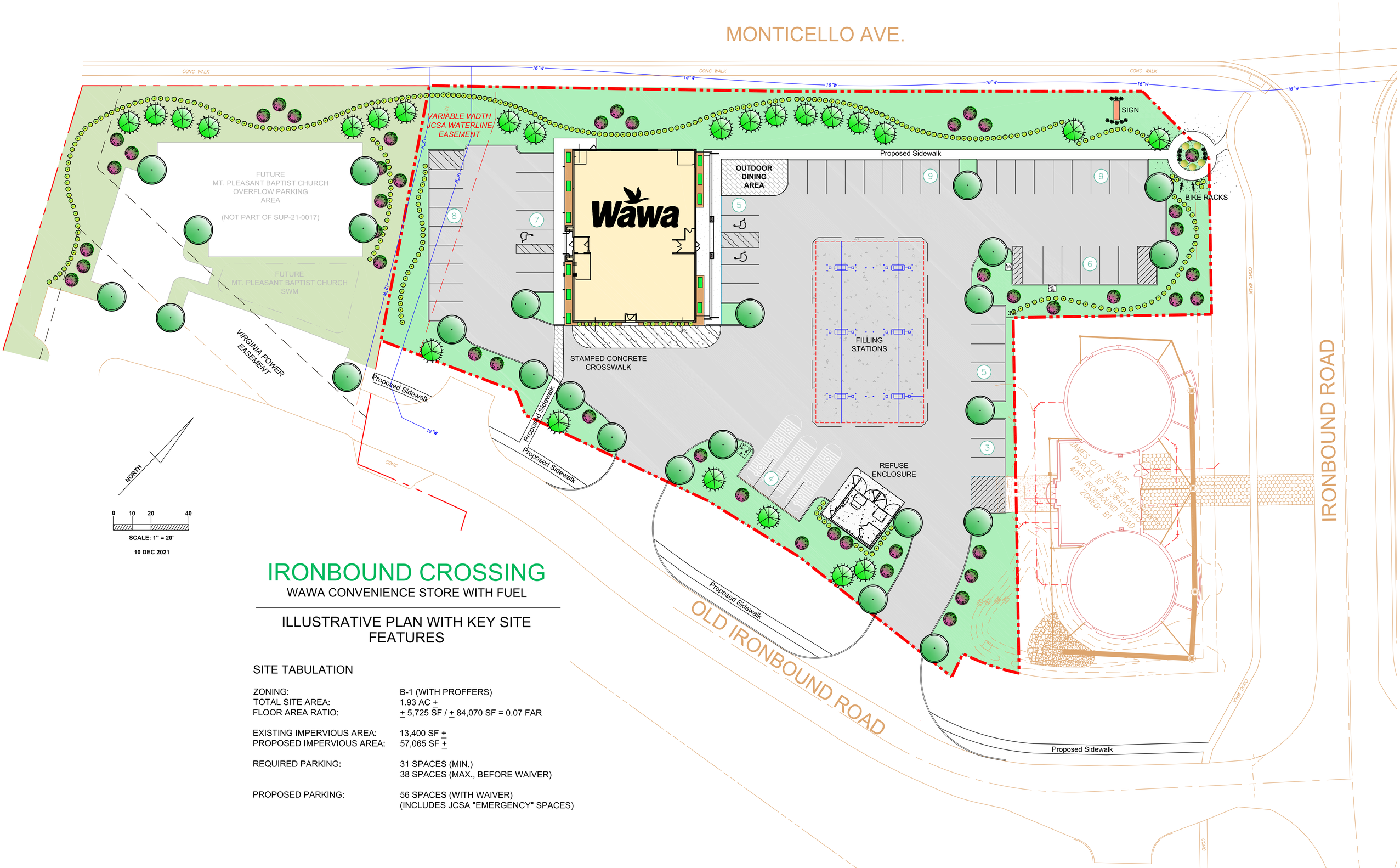


NEW TOWN SECTIONS 7 & 8
PM PEAK HOUR

DRW Consultants, LLC
804-794-7312

Exhibit U3

Sheet 2 of 2



IRONBOUND CROSSING

WAWA CONVENIENCE STORE WITH FUEL

ILLUSTRATIVE PLAN WITH KEY SITE FEATURES

SITE TABULATION

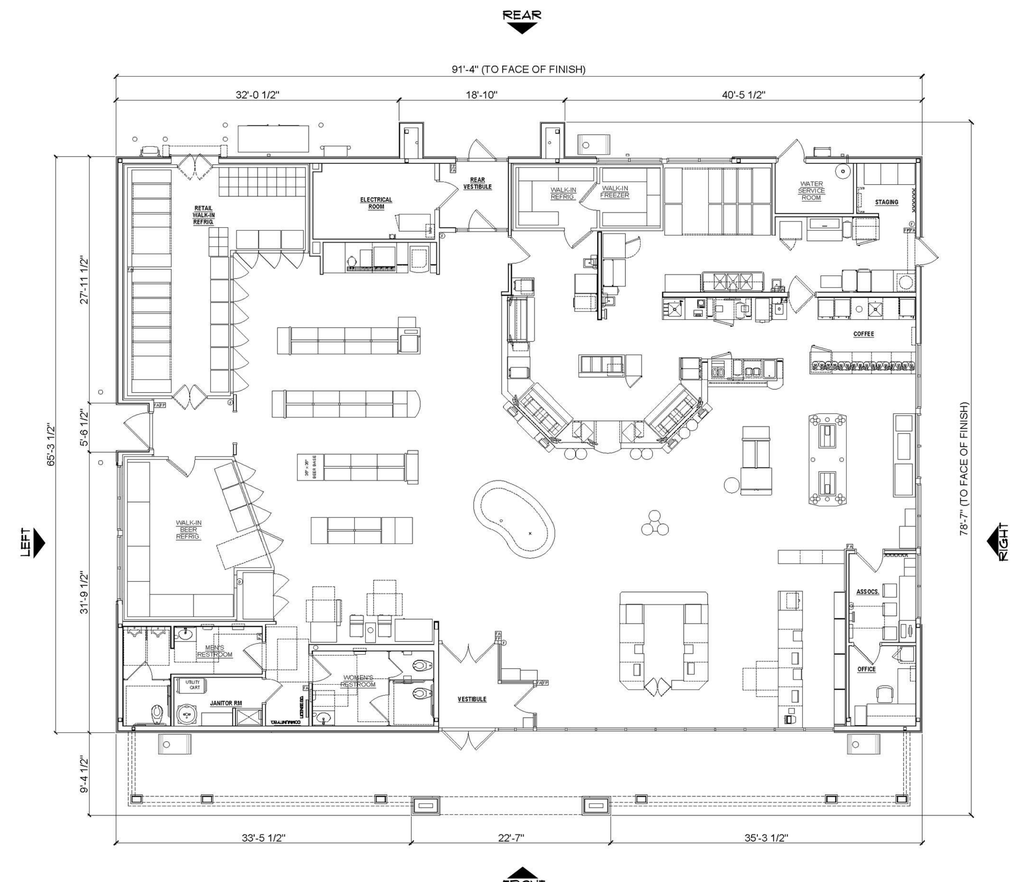
ZONING:	B-1 (WITH PROFFERS)
TOTAL SITE AREA:	1.93 AC ±
FLOOR AREA RATIO:	± 5,725 SF / ± 84,070 SF = 0.07 FAR
EXISTING IMPERVIOUS AREA:	13,400 SF ±
PROPOSED IMPERVIOUS AREA:	57,065 SF ±
REQUIRED PARKING:	31 SPACES (MIN.) 38 SPACES (MAX., BEFORE WAIVER)
PROPOSED PARKING:	56 SPACES (WITH WAIVER) (INCLUDES JCSA "EMERGENCY" SPACES)

RIGHT (NORTHWEST) ELEVATION (MONTICELLO AVE.)

FRONT (NORTHEAST) ELEVATION (IRONBOUND RD..)

REAR (SOUTHWEST) ELEVATION

LEFT (SOUTHEAST) ELEVATION (OLD IRONBOUND ROAD)



FLOOR PLAN

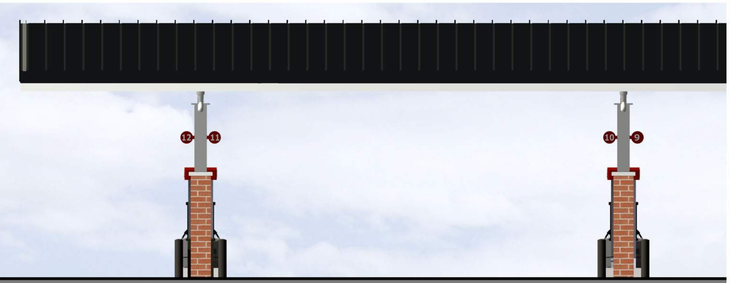
NOTE:
SIGNAGE IS SHOWN FOR REFERENCE ONLY
SEPARATE PERMIT REQUIRED

Cuhaci & Peterson
Architects Engineers Planners
ORLANDO • PHILADELPHIA

WAWA W50 FB M VA_v.2019.01 STORE #8687

Monticello Ave. & Ironbound Rd., Williamsburg, VA • C&P Project #2190753 • 12-20-2021

CANOPY END ELEVATION



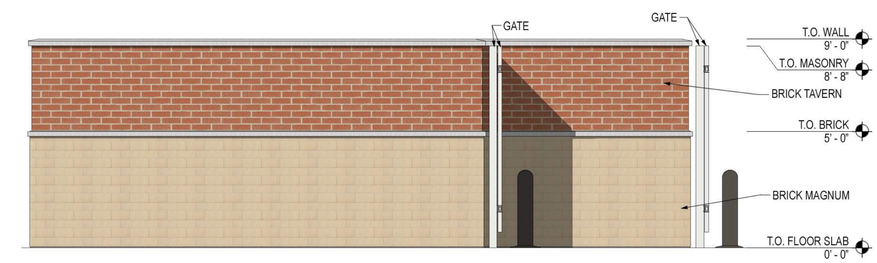
CANOPY SIDE ELEVATION

The Wawa fuel canopy is a registered service mark in the U.S. Patent and Trademark Office. The fuel canopy, as well as Wawa's brand names, slogans, logos, service marks, and other trademarks of Wawa's goods, services, and promotions belong exclusively to Wawa, Inc. and/or, Wild Goose Holding Co., Inc. and are protected from copying and simulation under national and international trademark and copyright laws and treaties throughout the world.

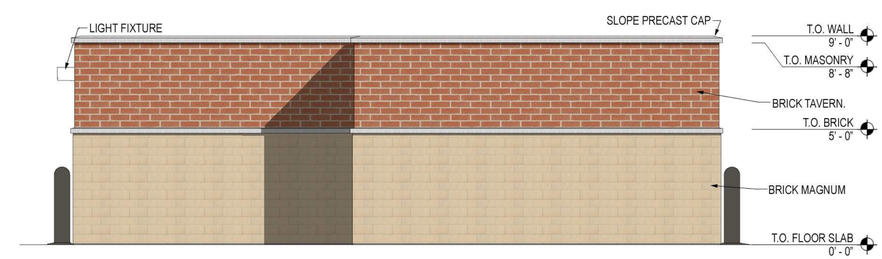
CANOPY PERSPECTIVE VIEW

FRONT ELEVATION

RIGHT ELEVATION



LEFT ELEVATION



REAR ELEVATION

Metal Door	Trim	Thin Brick	Cast Stone
Benjamin Moore White Diamond BM 2121-60	James Hardie Arctic White JH10-20	Tavern Flash Red Marion Ceramics	Wheat

Cuhaci & Peterson
Architects Engineers Planners

WAWA GAS CANOPY® STACKED 6 A-FRAME - TRASH COMPOUND MAOF17-R

Monticello Ave. & Ironbound Rd., Williamsburg, VA • C&P Project #2190753 • 12-20-2021

Design Guidelines
for
Ironbound Crossing
in
James City County, Virginia
December 13, 2018

Prepared for:
Bush Construction Corporation
4029 Ironbound Road, Suite 100
Williamsburg, VA 23188

Prepared by:
Hopke & Associates, Inc.
1156 Jamestown Road, Suite C
Williamsburg, VA 23185
www.hopke.com
and
AES, Consulting Engineers
5248 Olde Towne Rd, Suite # 1
Williamsburg, VA 23188
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Contents

Introduction 2
Site Features and Opportunities 4
Street Design 7
Building Placement and Massing 7
Architectural Character 8
Allowable Materials 9
Parking and Access 10
Landscape, Hardscape and Planting 11
Site Lighting 11
Signage 12

Introduction

These guidelines provide site planning and architectural guidance, identify context-sensitive approaches to realizing site potential and suggest strategic development opportunities for the property identified below:

The property outlined in red consists of three "zoning" parcels, all of which are proposed to be zoned B-1, with Proffers. The western most parcel is owned by Mt. Pleasant Baptist Church and is highlighted for reference. The middle parcel has been offered by VDOT for purchase by G-Square, Inc. and will be joined to the east most parcel to create a single property. All three zoning parcels will be governed by these guidelines. As required in the transaction with VDOT, the existing Old Ironbound Road cul-de-sac will be removed and a branch turn-around meeting VDOT standards will be constructed within the VDOT right-of-way before the end of state maintenance where Old Ironbound Road becomes a private road serving only the church.

Located at the intersection of Monticello Avenue and Route 199, this property is positioned within the Monticello Avenue corridor leading to the "New Town" Development of James City County, but it is not technically a part of it. Given its context, the property's ability to contribute to the sense of place that has become New Town and the Monticello Ave corridor, and to complement and enhance the built environment of New Town and the Monticello Avenue corridor, will be advanced by adherence to these guidelines.

The New Town Design Guidelines identify the parcels nearest the Monticello Avenue/199 interchange as "gateway" commercial development opportunities:

> *The more urban centers of New Town are appropriately located at the [through-] intersection of Monticello and Ironbound, while more regionally targeted development occurs near Monticello's intersection with Route 199. These commercial centers establish the first image and impression of New Town to those who pass by or visit from other areas in the region. The planning and design of these sites, then, becomes paramount in setting the desired character for all of the neighborhoods located in the town.* [Cooper Robertson, quoted from design guidelines for Windsor Meade Shopping Center].

Since those design imperatives were first committed to print, New Town has completely built out its property along the Monticello Ave. corridor. Other parcels not formally a part of New Town have also developed, leaving the subject site as the last remaining free-standing developable acreage along the corridor. Given that the character, rhythm and quality of the corridor is now well established, development of this property should be consistent -- addressing arrival by automobile, with adequate, convenient and logical on- and off-street parking, while also promoting movement within the development and between adjacent developments by foot.

Given its acreage is significantly smaller than other planned development sites along the corridor, flexibility in site design is inherently somewhat less than those larger parcels. Nevertheless, the site should avoid the suburban patterns of development that are characterized by large setback areas, highway scaled signage and general lack of connectedness. Instead, it should more closely follow the patterns of development characterized by its closest neighbors along the corridor, namely the portion of Settler's Market closest to Rte. 199 and the portion of Courthouse Commons closest to Ironbound Road/Monticello Ave.

Site Features and Opportunities

The property is comprised of three zoning parcels: Zoning Parcel 1 is the roughly 1.2 acre existing G-Square, Inc. property located at the corner of Monticello Ave. and Ironbound Road. Zoning Parcel 2 is a roughly three-quarter acre area of VDOT right-of-way surrounding the existing Old Ironbound Road cul-de-sac proposed to be abandoned and sold to G-Square, Inc. Upon abandonment, Parcel 2 will be subsumed into Parcel 1. Zoning Parcel 3 is a roughly three-quarter acre portion of Mt. Pleasant Baptist Church located north of Old Ironbound Road beyond the end of State Maintenance (uses here will be limited to accessory uses to a place of public assembly). Together, the lands subject to these guidelines are bordered on all sides by public streets: Monticello Avenue, Ironbound Road, Old Ironbound Road and Route 199. To its east, the property wraps around the Ironbound Water Storage Facility which, although a utilitarian function, has been designed to the standards of the surrounding architecture.

Along its northern edge, Monticello Avenue is a four-lane arterial road that sits higher in elevation than the site itself. VDOT enjoys a slope maintenance easement along that property line of the site. Visibility into the site from Monticello and from the 199 overpass is downward. This will make roof design and screening of rooftop equipment a critical element of focus for the design of buildings.

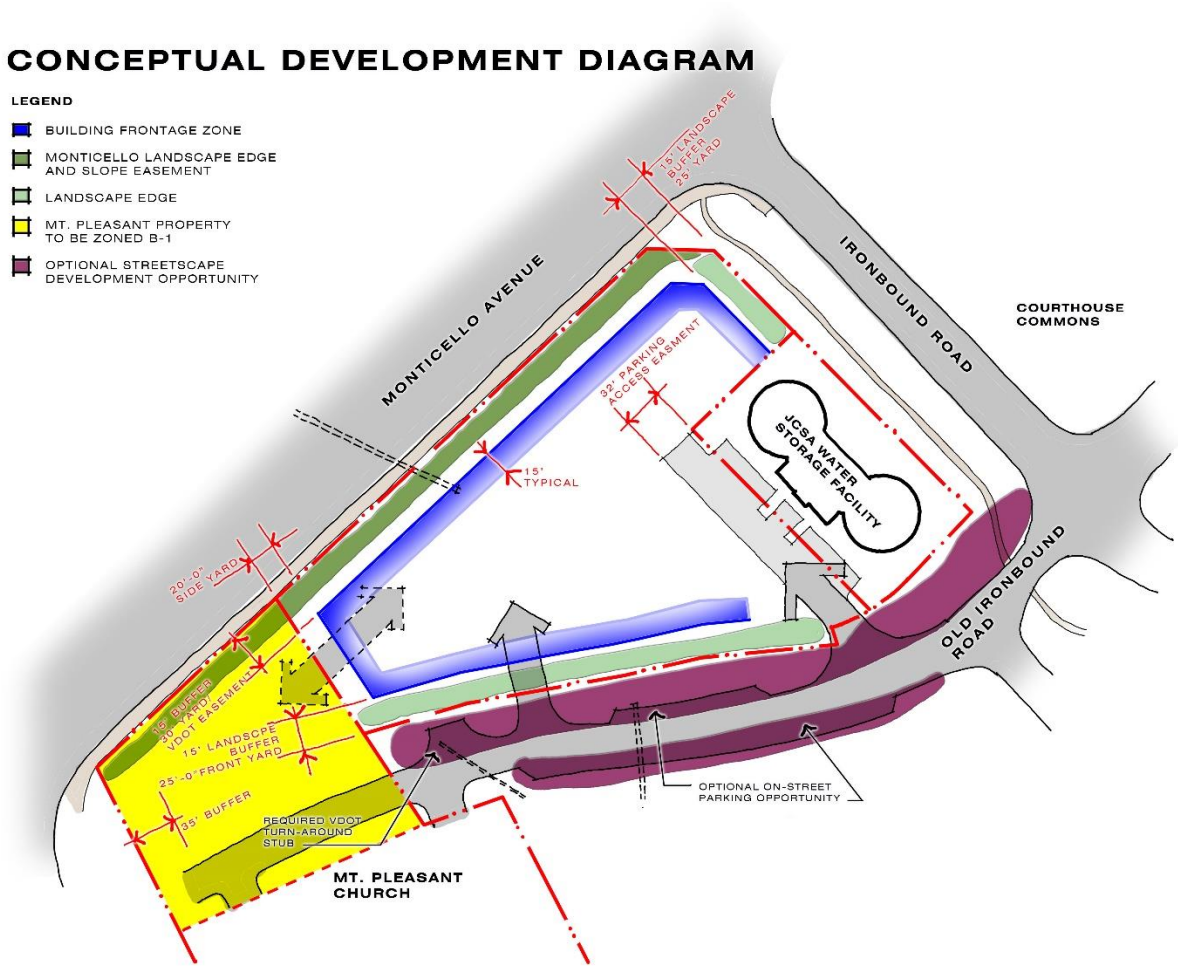
Along its southern edge, Old Ironbound Road, which is a cul-de-sac road with a variable width right-of-way, aligns with an internal street of the neighboring Courthouse Commons development. As part of the agreement with VDOT to sell the land, the cul-de-sac will be removed and a branch turn-around will be constructed within the VDOT right-of-way. All vehicular traffic to the site will approach from Old Ironbound Road. Given the excessive existing right-of-way width of Old Ironbound Road, the developer is encouraged to pursue improving the street with on-street parking, which the County will credit toward buildable square footage on-site. This off-site development, although not required, is encouraged as a way to create a visual extension and practical connectivity to the Courthouse Commons development.

The western boundary is the Route 199 right-of-way, which is currently zoned R-8.

The eastern portion of the property abuts and partially wraps around the existing JCSA water storage facility. As part of the collaboration between the JCSA, G-Square, Inc. and Bush Construction Corporation involved in planning for the water storage facility over 15 years ago, shared parking was planned along the western side of the water storage facility. Shared access to this parking, and the G-Square, Inc. parcel, will remain generally as built (for the water storage facility) and accessed from Old Ironbound Road. Given this history and the cross-easements recorded to the mutual benefit of the parties, the developer should incorporate the parking adjacent to the water storage facility into an overall parking plan for the property, revising its layout as necessary, provided: (1) it represents no further reduction of the water storage facility yard than currently exists, and (2) does not compromise service access to the water storage building.

At the northern corner of the site, where the property wraps around the water storage facility, is the intersection of Monticello Avenue and Ironbound Road. While the configuration of this portion of the parcel does not lend itself to a large building, one or more small buildings may be feasible. The use of a portion of this area as a pocket park is encouraged, subject to evaluation of safety concerns associated with this high volume, high speed signalized intersection; it may also be suitable for monument signage to identify the parcel or major tenant.

Traversing the middle of the property northwest to southeast is an existing surface drainage pattern. Stormwater enters the site from a culvert under Monticello Avenue and leaves the site through a culvert under Old Ironbound Road. The developer is free to re-route this drainage utilizing any approved method. Recognizing that this may entail surface or subsurface drainage structures over which constructing buildings is difficult, these guidelines anticipate a lack of vertical development at that location.



Note:

1. "Landscape Edges" are formal landscaped areas along property boundaries that may include a town-fence, retaining walls, hedges, etc.. Street trees are to be provided along Monticello, unless topography or other constraints would preclude them. These landscape edges create a foreground for building facades or, in the absence of a building façade, act to create a "hard edge" to the adjacent street.
2. "Frontage Zone" is an area wherein at least 75% of a building façade must reside (except as indicated below, under "Street Design"). In the absence of a building façade, a "hard edge" of landscape elements must be provided in the adjacent "Landscape Edge."
3. "Streetscape Development Opportunity" identifies off-street landscape, hardscape and parking which may be undertaken at the option of the developer, if approved by all jurisdictions having authority.

Street Design

Old Ironbound Road is a remnant of Ironbound Road that existed prior to the construction of Route 199. It may also be seen as an extension of the Courthouse Commons Internal Road. Streetscape design along this Old Ironbound Road is constrained by its excessive right-of-way (ROW) width. Nevertheless, developers are encouraged by these guidelines to pursue off-site improvements and parking within the VDOT right-of-way, to the extent feasible and as may be allowed and approved by the agency. As an additional incentive to building siting along Old Ironbound Road, these guidelines designate a "Frontage Zone" for buildings along Old Ironbound Road of 25' – 40' from the right-of-way.

The Frontage Zones are areas in which 75% of the boundary facing façade of buildings must reside. This is designated to encourage the developer to enhance the streetscapes with architecturally rich treatment and, if possible, public entrances. It is recognized that not all user types which might occupy the site would lend themselves to that arrangement. For example, a Bank or Restaurant with a drive through would require vehicular travel lanes all around the building, negating the ability to pull the façade close to the property line. In such cases, these guidelines require that the landscape edge be developed with a "hard edge" that would include a structural site element, such as fencing or a wall or combination, or the equivalent. The developer will have the option of choosing one or more of the multiple frontage zones available across the site within which to site a building, depending on the nature and specific requirements of the end user. Said another way, the master plan does not intend to require that all available frontage zones will or should be occupied by building structures.

Street design along Monticello Avenue is constrained by a grade differential, high-speed traffic, and an existing multi-use bike/pedestrian trail. Given the grade change, design of this area should address issues of pedestrian safety as well as aesthetics, such as: Structures may be positioned to create a building edge along Monticello. Where absent of buildings, this site boundary should incorporate a strong, hard landscape edge, incorporating hedges, or a complementary town fence. Street trees are to be incorporated along this edge, unless topography or other constraints would preclude them. It is recognized that achieving adequate parking may require the use retaining walls.

Building Placement and Massing

Arrival and Orientation

Buildings should be organized to anticipate vehicular and pedestrian arrival to the site via Old Ironbound Road and should also anticipate pedestrian arrival from the corner of Ironbound Road and Monticello Ave. As mentioned above, the parcel configuration at the corner of these two roads may provide the developer an opportunity to create a small park (taking into account public safety concerns with high speed traffic

and potential vehicle conflicts inherent at signalized intersections), and perhaps locate project signage there as well.

One or more buildings should be organized on the site to:

- Reinforce streetscapes and street edges along Old Ironbound Road and/or Monticello Avenue,
- Create a sense of arrival for the building users and an obvious approach to the building entrance(s),
- Engage the buildings on the adjacent sites, Monticello Avenue and Old Ironbound Road with appropriate architectural development along those facades.

Building Shape and Footprint

The sense of scale of the proposed buildings shall be in keeping with existing adjacent development. Footprints over 10,000 sf should be broken up in their massing so as to appear as multiple buildings.

Since much of the site is lower than the adjacent Monticello Avenue and well below the 199 overpass, taller buildings up to the maximum height permitted in B-1 are allowed and encouraged. Single story buildings should be designed with adequate height, roof forms, or roof screening to limit the visibility of roof level construction and mechanical equipment.

Architectural Character

The use of materials and general massing of Courthouse Commons and the Water Storage facility should set the tone for the architectural character of all structures within the development. Fundamentally, building masses are to be broken down into smaller, pedestrian scaled elements. There should be a mix of sloped roof elements and parapet-roofed facades. Buildings are to have a predominantly 1-1/2 to 3 story expression; thus one-story buildings should appear to have an attic level with dormers or other architectural devices creating that illusion. Large floor plates (exceeding 10,000 sf) are generally not preferred, but in such cases where the use demands a larger floor plate, building masses are to be visually broken down into smaller elements to give the appearance of an assembly of multiple smaller buildings.

All buildings should conform to the nature of the streets and/or open spaces which they front. Variations in the building facades are required to express multi-tenant occupancies. Each building shall be designed to look attractive from all sides visible to the public. Facades should be articulated with panels, pilasters, cornices and/or other architectural devices so as to avoid long blank walls. Porticos, pediments, and other like features are encouraged to express major entrances. Landscaping elements and/or

treatments specifically designed to break up building massing are also encouraged.

Particular attention should be paid to the roof structure and visibility of the roof from adjacent roadways. Rooftop equipment screening is required, whether by screening device or architectural forms.

Allowable Materials

All buildings are to use a similar or complementary pallet of materials as the adjacent Water Storage Facility and Courthouse Commons development. Specifically:

Walls:

- Brick
- Cast Stone Trim, Veneer, and/or Coping
- Wood or Cellular PVC for Trim
- Fiberglass, Aluminum, or EIFS Cornice and Fascia
- Pigmented, Textured Concrete Block is acceptable on rear and non-public facades.
- Wood or Cementitious Siding (with 5/8" or greater relief in profile or overlap)

Roofing:

- Slate Roofing, Simulated Slate Roofing (rubber); fiberglass asphalt roofing (300# or better); standing seam Metal (aluminum, copper, or steel).
- Gutters and Downspouts (copper or aluminum, round or box (residential Ogee shape is not acceptable).
- Flat or Low-sloped roofs may be of metal or synthetic membrane, where concealed from public view by a parapet.

Building Elements:

- Columns may be true classical pre-fabricated synthetic, or field-fabricated wood. If field-fabricated, extra attention to detailing and proportions will be required.
- Chimneys are to be of brick or stucco.
- Posts, spindles, balusters may be of painted wood or metal. Synthetics such as hard foam or cellular PVC may be utilized if adequately heavy in dimension and anchored and painted.
- Stoops and exterior steps: brick or stone (concrete may be utilized for non-public entrances where screened or not visible to the general public).
- Awnings and Canopies: canvas covered metal structure.

Signs: wood, painted metal, hard foam, or as otherwise allowed by James City County ordinances.

Fenestration:

- Windows may be wood or metal, subdivided with exterior muttons.
- Storefront windows for display may be subdivided into larger panels but should not exceed 36" in dimension. Panes should be square or rectangular, oriented vertically.
- Bay windows: wood or metal with metal roofing.
- Shutters: wood or cellular pvc; shutters should be equipped with shutter hardware and be operable or give the appearance of being operable.
- Doors: wood, metal, glass; utility doors should be metal or fiberglass.

Stylistically, all buildings within the development are to retain a common identity, evocative of Federal Period American Architecture. While replica architecture is impractical and undesirable, use of materials, colors, and detailing that allude to the architecture of that period is expected. The use of porches, balconies, bays, loggias, arcades, chimneys, cupolas, dormers, and operable windows are strongly encouraged as devices that help reduce the scale of buildings, making them more approachable and village-like. The principal roof forms are to be gabled or hipped and may range between 4/12 and 12/12. Shed roofs should be 2/12 to 6/12 in slope. Flat or Low-slope roofs are acceptable for larger roof areas but should be concealed by a decorative parapet or ballustrade. Dormers may be gabled, hipped or eye-brow (but not shed-type).

Special roof-top ornaments, such as cupolas, weather vanes, etc. should be custom designed or selected for appropriate scale and proportion to the building forms.

Mechanical units and building utilities, such as electrical meters and panels, are to be located so as not to detract from the architecture and are to be screened. Roof-top equipment should be architecturally screened and not visible from Monticello Avenue, Ironbound Road, or Old Ironbound Road. Generally, screens should be constructed of permanent materials that relate to the building architecture, such as brick and cast stone. Where located against the property buffers, or otherwise not plainly visible from adjacent streets, utilities and mechanical units may be screened with landscaping alone. Drainage from building roofs should be channeled underground to the storm water system unless "spilling at grade" can be engineered without compromising landscaping or pedestrian areas.

Parking and Access

Parking access and organization should be designed to limit the amount of curb, gutter and asphalt on the site and promote the ease of movement about the site by pedestrians. To that end, raised or surface patterned crosswalks, colonnades of shade trees, pedestrian scale street lights and/or formal sidewalk geometries should be incorporated to emphasize the primacy of the pedestrian over the automobile on the expanded G-Square parcel. The Parking on the church parcel designed for infrequent overflow use shall not require the same formal treatments or geometries as described for the G-Square parcel. For overflow parking on the church parcel, a less formal approach is appropriate; lighting is not warranted unless regular nighttime activities are anticipated. However, greater attention should be paid to softening views from Monticello Ave. into this overflow parking area.

Landscape, Hardscape and Planting

Building Perimeters - Landscaping at buildings shall meet or exceed the requirements as specified in the JCC Zoning Ordinance, Division 4, Section 24-97. The use of trellis and landscape structures to facilitate the growth of live plant material immediately in front or on the buildings is strongly encouraged.

Parking layout and landscaping is to comply with the requirements of the relevant landscape standards of the James City County Ordinance (Article II, Division 4). Hedges planted to screen the parking lots from the perimeter shall be planted at an installed height of 30". The predominant tree type used within parking lots shall be deciduous shade trees. Evergreen trees shall be provided where additional screening is desirable. All deciduous trees in parking lots shall be 2-1/2" caliper at installation.

To further link the development to the New Town community and in particular to the Courthouse Commons project, the developer is encouraged to incorporate similarly inspired design details used in New Town. For example, at pedestrian crossings and along streets, a combination of concrete pavers, brick pavers and gray concrete can be used to emphasize points of arrival and to create a sense of hierarchy among the site elements.

Street Furnishings, including street and parking lot light fixtures, benches, trash receptacles, bike racks and bollards, shall include selections from or comparable to those items identified and/or illustrated in the New Town Streetscape Package prepared by Cooper Robertson & Partners dated May 5, 2003 and/or present within the adjacent Courthouse Commons development.

The perimeter buffer adjacent to Monticello Avenue shall contain enhanced landscaping per the James City County Enhanced Landscape Policy, adopted April 9, 2013. Examples of enhanced landscaping could be, but are not limited to, upright evergreen plantings for screening of parking and other undesirable features, decorative fencing, benches and other pedestrian accommodations, and increased plant installation size and quantity. An enhanced landscaping narrative will be provided at the site plan phase of the project to incorporate with the use(s) on the site, which will summarize the enhanced landscape treatment for the site.

Site Lighting

Site Lighting shall consist of two different types of fixtures:

- Lighting for parking and security - this lighting is for general visibility and security and should be tall and pole-mounted (30' maximum), delivering a general lighting level as required or recommended by local law enforcement or an end user's specific site safety standards. These fixtures may be contemporary in nature and are not intended to be architectural elements in-and-of themselves, but rather deliver an ambient lighting level where critical.
- Lighting for pedestrians should consist of decorative building mounted fixtures, bollard-type fixtures and/or pedestrian scaled street lamps (maximum pole height of 16'). These fixtures are intended to reinforce the overall architectural expression of the buildings and should be arranged to help guide pedestrian movement about the site.

Site light fixtures shall include selections from or comparable to those items identified and/or illustrated in the New Town Streetscape Package prepared by Cooper Robertson & Partners dated May 5, 2003 and/or present in the adjacent Courthouse Commons development.

Signage

All signage recommendations shall be subject to the provisions of Article II, Division 3 of the James City County Ordinance.

Building mounted signs and free-standing signs will comply with James City County zoning ordinance for sign location and construction. Wall mounted signage should be integrated with and/or be properly proportionate to the architecture of the building. They are to be mounted flat upon the facade or with "stand-offs" no greater than 6".

A free-standing sign for the development, if provided, is to be located at the corner of Monticello Avenue and Ironbound Road or at the intersection of Ironbound Road and Old Ironbound Road. This sign is to be monument style and designed to promote visual unity within the development. Individual letters in signs may be internally lit. Its size and scale should be in keeping with established monument signs on the corridor (e.g. Settlers Market and Courthouse Commons).

Other signs, when illuminated, must be externally lit. "Halo" lighting of individual letter signs (where the letters are opaque but an internal light washes the background of the letters) are acceptable as externally lit signage.

Way-finding signage is encouraged, but subject to regulation by the zoning administrator per James City County Ordinance, Section 24-73. Lettering and mounting height should be sized to assist the pedestrian in finding a building entrance, or a driver of a vehicle to find a parking space. Number and size of such signage is not specifically dictated but should be kept to the minimum number necessary and clearly subservient to other site signage. Generally, lettering should not be over 4" in height, and logos of that same size are permissible but shall not dominate the message of the sign. Street signs and traffic control signs within State right-of-way will utilize the New Town, Courthouse Commons or Settler's Market models, subject to VDOT approval.

Prepared By: Vernon M. Geddy, III, Esquire (VSB#21902)
(Attorney licensed to practice law in Virginia)
Geddy, Harris, Franck & Hickman
1177 Jamestown Road
Williamsburg, VA 23185

Tax Parcel: 3840100002A

Return To: County Attorney
101-D Mounts Bay Road
Williamsburg, Virginia 23185

PROFFERS

THESE PROFFERS are made as of this 25 day of JAN, 2019, by G-SQUARE, INC., a Virginia corporation (together with its successors and assigns, the "Owner"), COMMONWEALTH OF VIRGINIA, DEPARTMENT OF TRANSPORTATION ("VDOT") and BUSH CONSTRUCTION CORPORATION, a Virginia corporation, and lessee from Owner under a long-term land lease ("Bush").

RECITALS

A. Owner is the owner of certain real property (the "G-Square Property") in James City County, Virginia more particularly described on Exhibit A attached hereto and made a part hereof.

B. VDOT is the owner of certain real property (the "VDOT Property") in James City County, Virginia adjacent to the G-Square Property and being more particularly described on Exhibit B attached hereto and made a part hereof.

C. Owner is the contract purchaser of the VDOT Property.

D. The G-Square Property is now zoned B-1, with Proffers dated January 23, 2002 recorded in the Clerk's Office of the City of Williamsburg and County of James City as Instrument No. 040002694 (the "Existing Proffers"). The VDOT Property is zoned R-8.

E. Owner has applied for a rezoning of the G-Square Property to B-1, with new proffers,

and, with the consent of VDOT, of the VDOT Property to B-1, with proffers and in connection therewith has submitted a Master Plan prepared by AES Consulting Engineers entitled "Master Plan Ironbound Crossing for Rezoning" and dated November 14, 2018 (the "Master Plan") and design guidelines entitled "Design Guidelines for Ironbound Crossing in James City County" prepared by Hopke & Associates dated November 14, 2018 (the "Design Guidelines"). The Design Guidelines have been submitted to and approved by the New Town Design Review Board ("DRB"). The G-Square Property and the VDOT Property are hereinafter called the "Property."

F. Owner desires to amend the Existing Proffers with respect to the G-Square Property and to offer to the County certain conditions on the development of the VDOT Property not generally applicable to land zoned B-1 for the protection and enhancement of the community and to provide for the high-quality and orderly development of the Property.

NOW, THEREFORE, for and in consideration of the approval by the Board of Supervisors of James City County of the applied for rezoning, Owner agrees that it shall meet and comply with all of the following conditions in developing the Property. If the applied for rezoning is not granted by the County, these Proffers shall thereupon be null and void and the Existing Proffers shall remain in effect. Upon the approval of the applied for rezoning, the Existing Proffers shall be null and void.

CONDITIONS

1. Master Plan. The Property shall be developed generally in accordance with the Master Plan determined as provided in Section 24-23(a)(2) of the Zoning Ordinance.

2. Uses. The following uses, otherwise permitted by right in the B-1 zoning district, shall not be permitted on the Property:

Contractor offices
Hotels and motels
Limousine services
Lodges, civic clubs, fraternal organizations and service clubs
Lumber and building supply
Machinery sales and service
Boat storage and servicing, repair and sale facilities
Marine businesses to include the receipt, storage and transshipment of waterborne commerce or seafood receiving, packaging or distribution
Radio and television stations and accessory antenna or towers
Taxi service
Vehicle repair and service
Vehicle and trailer sales and services
Vehicle rentals
Wholesale and warehousing
Communications facilities
Telephone exchanges and telephone switching stations

3. Design Guidelines. Development on the Property shall be generally in accordance with the Design Guidelines. All architectural elevations, building materials, colors, signage, and other project elements shall be submitted to the Planning Director and the DRB, for the Planning Director's and the DRB's review and approval for consistency with the Design Guidelines.

4. Water Conservation. The Owner shall be responsible for developing and enforcing water conservation standards to be submitted to and approved by the James City Service Authority. The standards shall address such water conservation measures as limitations and use of irrigation systems and irrigation wells, drought management plans, the use of approved landscaping materials, including drought tolerant grasses and plantings, and the use of water conserving fixtures to promote water conservation and minimize the use of public water resources, including groundwater. The standards shall be approved by the James City Service Authority prior to approval of the site plan for development of the Property.

5. Monticello Avenue Limited Access. There shall be no vehicular access from or to the Property directly from or to Monticello Avenue.

6. Turn Lanes at the Old Ironbound Road Intersection. Prior to site plan approval for any use on the Property (other than the branch turn around), the Owner will provide estimated peak hour trip generation figures and perform turn lane warrants analysis for Ironbound Road (Route 615) at its intersection with Old Ironbound Road (Route 784). For any site plan submitted within two years of the date of approval of the requested rezoning, such trip generation and assignment figures shall be those used in the Traffic Impact Analysis for Former Radio Station Property dated December 17, 2018 made by DRW Consultants, LLC, which Analysis is on file in the Planning Department. If warrants are met, the Owner shall install turn lane improvements at the intersection as required by the Virginia Department of Transportation ("VDOT") or post a bond for the improvements in a form approved by the County Attorney, prior to the issuance of a certificate of occupancy for the use.

7. Traffic Impact Analysis and Associated Improvements. If any proposed use would cause cumulative verified peak hour trips from the Property to equal or exceed 100 peak hour trips, a traffic impact analysis shall be submitted to the County and VDOT for review and approval. Any traffic improvements identified in the approved analysis as being triggered by the proposed use and required by VDOT, shall be installed or bonded in form approved by the County Attorney by Owner prior to the issuance of a certificate of occupancy for the use.

[*signatures appear on following pages*]

WITNESS the following signatures and seals:

G-SQUARE, INC.

By: Gilbert R. Granger
Title: President

STATE OF Virginia
CITY/~~COUNTY~~ OF Williamsburg to-wit:

The foregoing instrument was acknowledged before me this 25th day of January, 2019, by Gilbert R. Granger as President of G-SQUARE, INC.

Cynthia R. Peery
NOTARY PUBLIC

My commission expires: 11/30/22.

CYNTHIA R PEERY
Notary Public
Commonwealth of Virginia
Registration No. 183267
My Commission Expires Nov 30, 2022

COMMONWEALTH OF VIRGINIA,
DEPARTMENT OF TRANSPORTATION

By: Lori A. Snider
Title: STATE RIGHT OF WAY & UTILITIES DIRECTOR

STATE OF VIRGINIA
CITY/~~COUNTY~~ OF RICHMOND, to-wit:

The foregoing instrument was acknowledged before me this 21ST day of FEBRUARY, 2019, by LORI A. SNIDER, as R/W DIRECTOR of COMMONWEALTH OF VIRGINIA, DEPARTMENT OF TRANSPORTATION

NOTARY PUBLIC

My commission expires: 2-28-19.

NEIL M. HORD
NOTARY PUBLIC
REGISTRATION # 7502082
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES
2-28-19

BUSH CONSTRUCTION
CORPORATION

By: M Diggs
Title: President

STATE OF Virginia
CITY/COUNTY OF James City/Williamsburg, to-wit:

The foregoing instrument was acknowledged before me this 14th day of February, 2019, by Mary L Diggs, as President of BUSH CONSTRUCTION CORPORATION.

Barbara A. Hossett
NOTARY PUBLIC

My commission expires:

Dec. 31, 2022

Exhibit A

G-Square Property Description

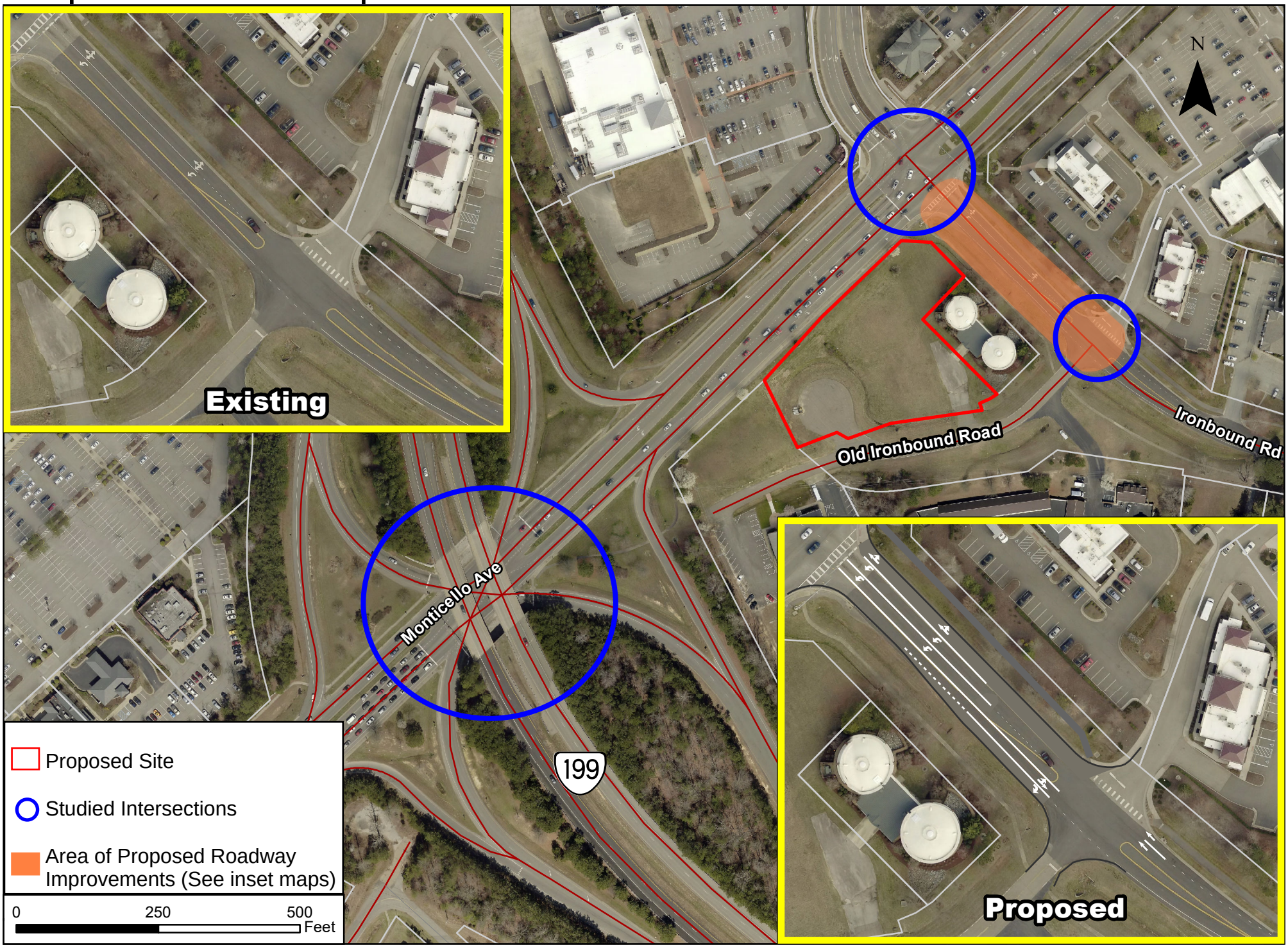
That certain piece or parcel of land shown and set out as "New Parcel 1, 1.174 AC., 51,142 SF" on the plat attached hereto entitled "Plat Showing Boundary Line Adjustment and Property Line Extinguishment Between the Parcels of James City Service Authority and G-Square, Inc." made by AES Consulting Engineers and dated 12/21/01.

Exhibit B

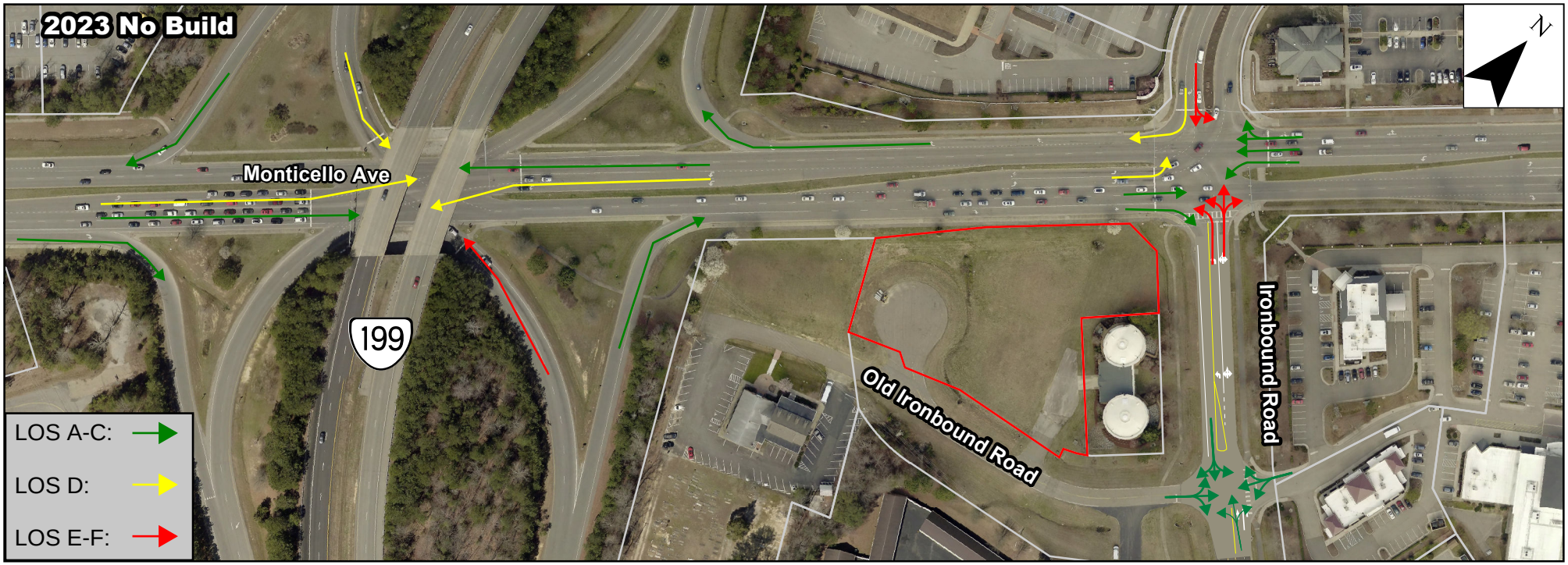
VDOT Property Description

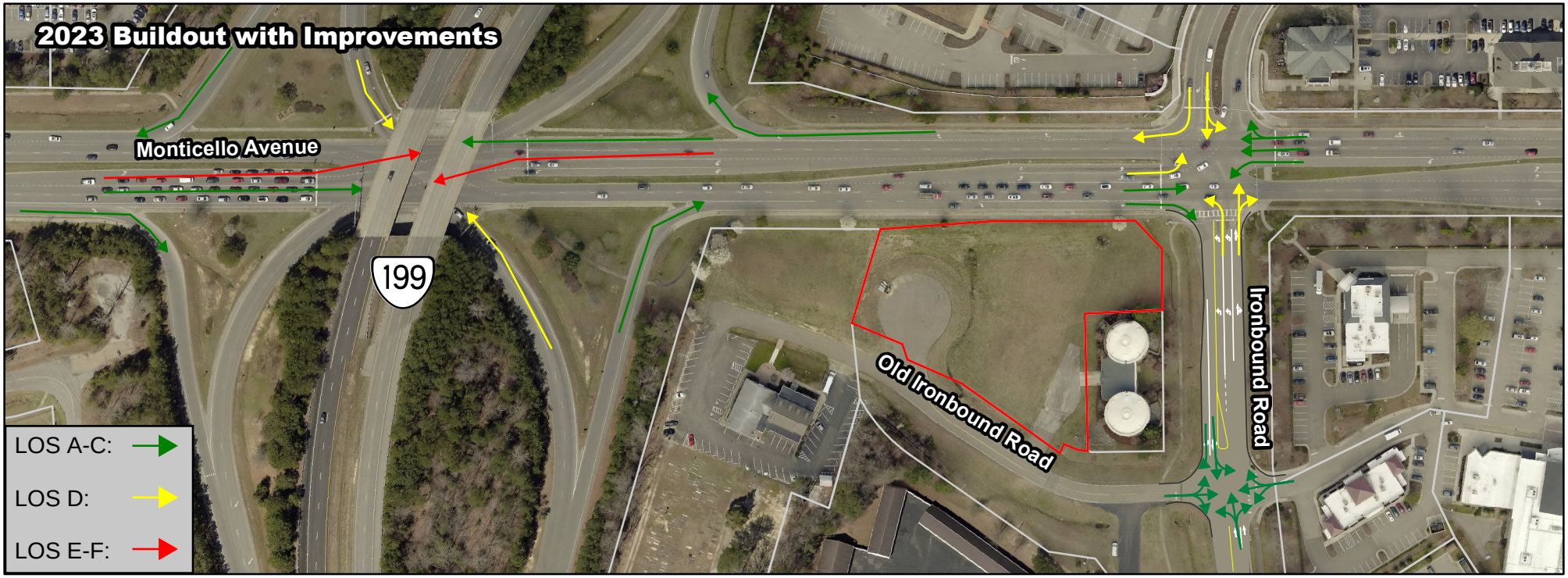
Being as shown in RED on Sheet 8D of the plans for Route 199, State Highway Project 0199-047-F03, RW-205 on file with the Virginia Department of Transportation Richmond Central Office, and lying south of and adjacent to the proposed right of way and limited access line of Route 199 from a point 95 feet opposite Station 139+21.42 (Monticello Ave. Ext. construction baseline) to a point 98 feet opposite Station 140+09.15 (Monticello Ave. Ext. construction baseline), containing 0.318 hectare or 0.7704 acre, more or less, land; and being part of the same lands acquired from Robert T. Casey, et. al. by amended Instrument dated January 3, 2001, recorded as Instrument Number L010005794, and concluded by Final Order dated April 3, 2001, recorded as Instrument Number 010268; and from G-Square, Inc. acquired by Instrument dated January 5, 1996, recorded in Deed Book 775, at Page 600, and concluded by Final Order dated June 5, 1997, recorded as Instrument Number L970465 in the Office of the Clerk of the Circuit Court of James City County, Virginia.

Proposed Traffic Improvements

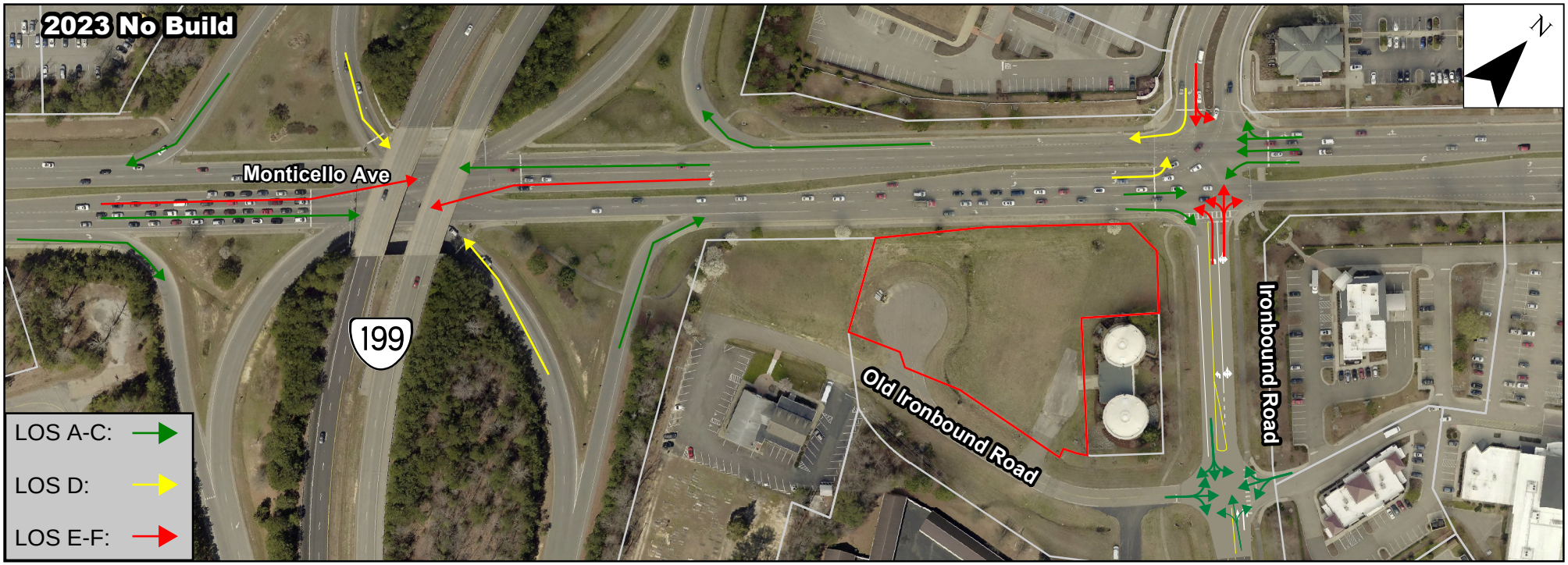


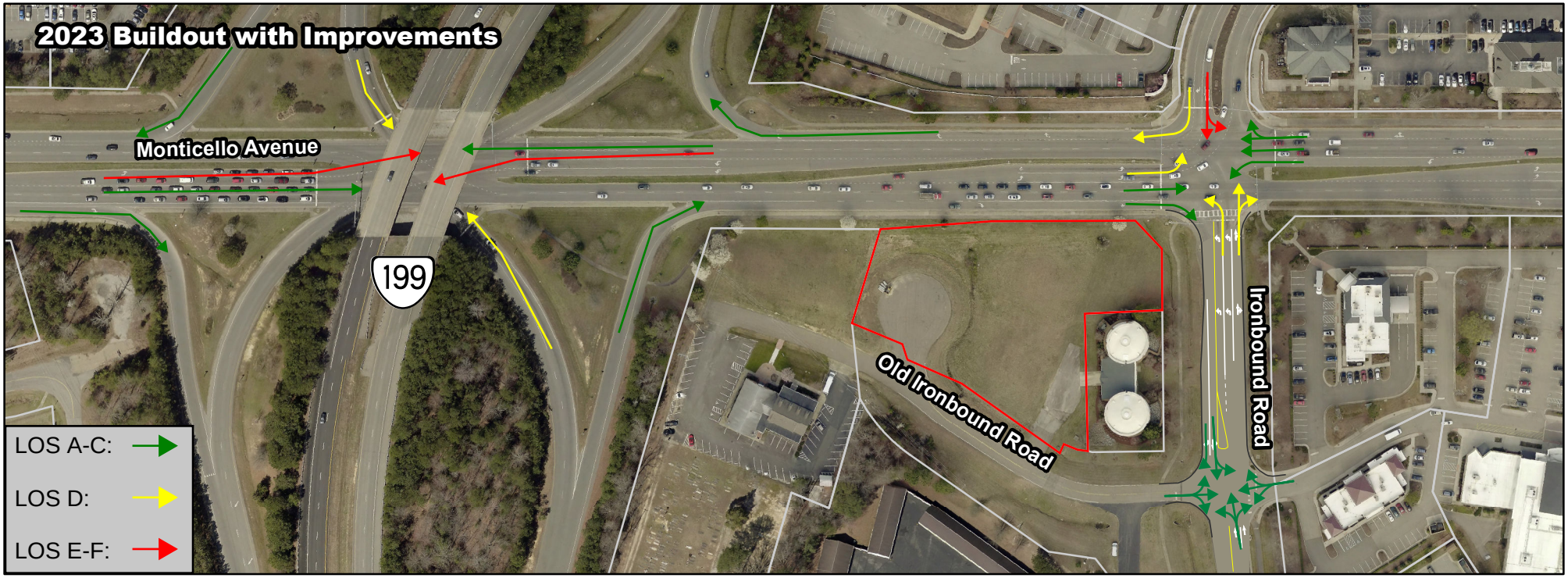
Proposed Levels of Service: AM Peak Hour





Proposed Levels of Service: PM Peak Hour





James City Service Authority

Operations Center
119 Tewning Road
Williamsburg, VA 23188-2639
P: 757-229-7421
F: 757-229-2463
jcsa@jamescitycountyva.gov

December 22, 2021

Paul Holt
Director of Community Development
101 Mounts Bay Road
Williamsburg, VA 23185

RE: Proposed Special Use Permit #SUP-21-0017

Dear Mr. Holt:

I am writing in the matter of the above referenced case. As you know, the property owner and developer of this current application collaborated with JCSA 20 years ago in the siting and planning, and ultimately the land swap and engineering required to make possible the JCSA's adjacent Ironbound Road Storage Facility. The agreement ensured that the JCSA could optimize the location of the water storage facility and included shared expenses for engineering and shared utility, stormwater and access easements between the two properties.

More recently, the applicant has worked with JCSA to explore issues and options for the development of their property to ensure their plans did not adversely impact JCSA's operations. We have specifically coordinated on issues of access, parking and security fencing, and the applicant worked with us to address our concerns.

I do not believe it appropriate for the JCSA to support or oppose a specific land use case. However, I felt it was relevant to let you know that the proposed development does not adversely affect JCSA.

If you have any questions or want additional information, please let me know.

Sincerely,

M. Douglas Powell
General Manager

Mount Pleasant Baptist Church
4002 Ironbound Rd
Williamsburg, Virginia 23188
(757) 206-1199
Mpbc_va@outlook.com

"Becoming A Twenty-Four Hour Church"

Pastor-Ronald A Ellis Assistant Pastor-Willie J Carter Chairman of Deacons-Stephanie Thomas
Trustee Chairman-Mildred Linton Clerk-Carolyn Evans Deering

December 15, 2021

James City County Planning Commission
101 Mounts Bay Road
Williamsburg, Va. 23185

RE: Special Use Permit #SUP-21-0017

Dear Chair and Members of the James City County Planning Commission:

Mt. Pleasant Baptist Church has existed at it current location for over 130 years. We are a faith community welcoming to all and our members have witnessed many changes in this community over the years that we have worshipped together. We know that change is inevitable and as a forward-looking congregation, we embrace the future with open eyes and open hearts. We have enjoyed a long and warm relationship with Bush Construction for many years. Today, we would like you to know that we support Bush Construction's efforts to build a Wawa convenience store with gas sales on the property adjacent to our church.

The property where the Wawa convenience store is proposed has been a big unknown for many years, certainly since Rte. 199 and the water storage facility were constructed some two decades ago. In 2016, the church and Bush Construction began talking about this property and their efforts to acquire the land that includes the existing cul-de-sac. While we have had the benefit of using the cul-de-sac for many years as overflow parking for funeral and wedding services, and other church ministries like our food distribution program, we understood that it was never a long-term solution to our needs.

Since VDOT abandoned the property in 2019 to Bush, Bush has continued to make this area available for our parking and ministry needs. Going forward, they have committed to build an all-weather surface overflow parking area on our property to replace parking we will lose in

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Trustee Chairman-Mildred Linton Clerk-Carolyn Evans Deering

the cul-de-sac as part of the Wawa project. Bush construction has also committed to assist us in other ways, including helping us to further secure and control access to our property and to provide long-desired security/surveillance for the church.

We believe that this proposed use will be compatible with our continued use and enjoyment of our property and the life of our church for many years to come. We encourage the planning Commission to recommend approval for SUP-21-0017.

Sincerely,

Mildred D Linton

Mt. Pleasant Baptist Church Trustees

Willie Lawrence

New Town Associates, LLC

4801 Courthouse Street-Suite 202

Williamsburg, Virginia 23188

January 4, 2022

James City County Planning Commission
101 Mounts Bay Rd.
Williamsburg, VA 23185

To the Members of the Planning Commission

New Town Associates LLC developed New Town as a mixed use, master planned community within James City County. The company was recently made aware that Wawa was interested in locating a new store on Monticello Avenue roughly across the street from the Walmart Neighborhood Market located in Settlers Market. Although the proposed Wawa location is not in the New Town master planned area, the site is adjacent to New Town and should be developed in a manner consistent with New Town. New Town Associates LLC was therefore pleased that the project was subjected to review and comments by the New Town Design Review Board (DRB) and was approved by the DRB. The submittal of this project to the DRB provides assurances that this site will be developed in a manner consistent with New Town architectural and land planning standards, and with other land uses in this area of James City County.

The company has also reviewed the James City County staff report on this proposed development. We believe that traffic and ingress/egress concerns have been reasonably addressed. Monticello Avenue was designed, built and signalized to accommodate and, in fact, attract traffic to New Town. A busy arterial avenue is what we expected and hoped for as New Town was conceived.

Thus as the founder of New Town, the company is pleased to offer this letter in support of the proposed Wawa development.

Thank you.

New Town Associates, LLC

Lawrence Salzman, President

December 13, 2021

James City County Planning Commission
101 Mounts Bay Road
Williamsburg, Va 23185

RE: Proposed Special Use Permit #SUP-21-0017

Dear Chair and Members of the James City County Planning Commission:

I write to you today in support of the proposed Wawa at 4007 Ironbound Road that you will consider at your January Planning Commission public hearing. I am unable to attend the meeting in person, but I would like this letter to be entered into the official record of the proceeding.

We have invested a tremendous amount of time, money and energy since the late 1990s building and maintaining our business, Ironbound Road Mini-Storage, directly across Old Ironbound Road from the proposed convenience store. As such, we have a keen interest in what happens at our front doorstep.

The Applicant reached out to us before Covid19 and since, to keep us abreast of their plans and to solicit our concerns and feedback. We have reviewed the latest concept plan and find it to be a thoughtfully crafted layout that is respectful of our property and other adjacent properties. It is a use that is needed in the Monticello Avenue corridor east of Rte. 199. We view the use as a very positive complement to our business and believe it is a preferable use to others that could be built there.

Accordingly, we urge you to favorably recommend this proposal to the Board of Supervisors. Thank you for your time and consideration of our thoughts in this matter.

Respectfully,
CENTRAL VIRGINIA STORAGE

Kenneth Freeman
Director of Operations

Unapproved Minutes of the January 5, 2022
Planning Commission Regular Meeting

SUP-21-0017. 4007 Ironbound Road Convenience Store with Fuel

A motion to Approve was made by Frank Polster, the motion was Passed.
AYES: 6 NAYS: 0 ABSTAIN: 0 ABSENT: 0
Ayes: Null, Rose, Polster, Leverenz, Krapf, O'Connor

Mr. Tom Leininger, Senior Planner, stated that Mr. Mark Rinaldi of Bush Construction Corporation has applied for an SUP for a convenience store with fuel sales at a property located at 4007 Ironbound Road, zoned B-1 with Proffers, designated Mixed Use on the 2045 Comprehensive Plan Land Use Map and located inside the PSA.

Mr. Leininger stated that a convenience store which sells and dispenses fuel is a specially permitted use in the B-1 Zoning District. Mr. Leininger stated that additionally, any convenience store and uses that generates over 100 peak-hour trips require a commercial SUP.

Mr. Leininger stated that in 2018, the property, along with the adjacent VDOT cul-de-sac and a portion of 4002 Ironbound Road were rezoned to B-1 with Proffers. Mr. Leininger stated that the rezoning also included design guidelines adopted by the Board of Supervisors.

Mr. Leininger stated that a Traffic Impact Analysis (TIA) was completed for this proposal, which recommends the installation of a second exclusive left turn lane on northbound Ironbound Road at the intersection of Monticello Avenue and Ironbound Road. Mr. Leininger stated that additionally, a right turn taper and right turn lane are recommended for southbound Ironbound Road at the intersection of Ironbound Road and Old Ironbound Road. Mr. Leininger further stated that the TIA recommends pavement markings and modifications to the traffic signal at the Monticello Avenue intersection. Mr. Leininger stated that all recommended improvements shall be installed before the first Certificate of Occupancy is issued for the Convenience Store.

Mr. Leininger stated that on October 28, 2021, the New Town Design Review Board (New Town DRB) reviewed the master plan and building elevations and approved the design in its conceptual form. Mr. Leininger stated that prior to site plan approval, the New Town DRB would review the design elements again for consistency with the adopted design guidelines.

Mr. Leininger stated that staff finds the proposal to be compatible with surrounding development and consistent with the 2045 Comprehensive Plan and Zoning Ordinance. Mr. Leininger further stated that Staff recommends that the Planning Commission recommend approval of this application to the Board of Supervisors, subject to the proposed conditions.

Mr. O'Connor called for disclosures from the Commission.

Ms. Null stated that she spoke with Mr. Geddy.

Mr. Polster stated that he spoke with Mr. Geddy.

Mr. O'Connor stated that he spoke with Mr. Geddy and Mr. Rinaldi.

Mr. O'Connor opened the Public Hearing.

Mr. Geddy spoke in favor of the application.

Mr. Polster asked if there was an intention of adding electric charging stations.

Mr. Jeb Bell, Real Estate Engineer, WAWA, Inc. stated the electric charging stations are shown on the plans for the purpose of identifying a possible future placement and would be constructed by a partner rather than Wawa.

Ms. Null asked if there would be a landscape buffer to screen the view from Monticello Ave.

Mr. Geddy stated that there would be and there is a condition for enhanced landscaping they need to meet.

Mr. Rose requested clarification that the traffic improvements were not removing the option to drive straight through.

Mr. Geddy confirmed there would be and that the right lane would have the ability to turn or go straight.

Mr. Rose requested confirmation that the church was getting a new overflow lot and were not losing space.

Mr. Geddy confirmed.

Mr. Ken Freeman, 10 Sussex Road, addressed the Commission in support of the application.

Mr. Geddy stated there would be additional stormwater and water quality requirements that would not be part of a by-right development associated with this application.

Mr. O'Connor inquired about the lightning requested assurance that it will not spill over.

Mr. Bell stated that the lighting is LED and directional.

Mr. Geddy stated it is a requirement that the light does not cross over.

Mr. O'Connor closed the Public Hearing.

Mr. Polster discussed the stormwater management and traffic flow.

Mr. Krapf discussed the aesthetics of the plan and meeting the Comprehensive Plan guidelines.

Ms. Leverenz stated that she thinks this is something needed in the area and that she appreciates the applicant coordinating with neighbors.

Mr. O'Connor stated that he appreciates the traffic guidelines and the supportive comments from the neighbors.

Mr. Polster made a motion to recommend approval of the application.

On a roll call vote, the Commission voted to recommend approval of SUP-21-0017. 4007 Ironbound Road Convenience Store with Fuel (6-0)

AGENDA ITEM NO. G.3.

ITEM SUMMARY

DATE: 2/8/2022

TO: The Board of Supervisors

FROM: Tom Leininger, Principal Planner

SUBJECT: SUP-21-0024. 158 Saddletown Road, Partlow Family Subdivision

---

ATTACHMENTS:

	Description	Type
	Staff Report	Staff Report
	Resolution	Resolution
	Location Map	Backup Material
	Master Plan	Backup Material
	Applicant Narrative	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Planning	Holt, Paul	Approved	1/20/2022 - 8:49 AM
Development Management	Holt, Paul	Approved	1/20/2022 - 8:49 AM
Publication Management	Daniel, Martha	Approved	1/20/2022 - 9:01 AM
Legal Review	Kinsman, Adam	Approved	1/24/2022 - 9:37 AM
Board Secretary	Saeed, Teresa	Approved	1/24/2022 - 10:01 AM
Board Secretary	Purse, Jason	Approved	2/1/2022 - 2:32 PM
Board Secretary	Saeed, Teresa	Approved	2/1/2022 - 2:50 PM

SUMMARY FACTS

Applicant:	Mr. Corey Partlow
Land Owner:	Ms. Valerie Partlow
Proposal:	Family subdivision to create one new parcel of ± 2.336 acres with one remainder parcel of ± 3.687 acres
Location:	158 Saddletown Road
Tax Map/Parcel No.:	1530100045
Current Zoning:	A-1, General Agricultural
Project Acreage:	± 6.023 acres
Comprehensive Plan:	Rural Lands
Primary Service Area: (PSA)	Outside
Staff Contact:	Thomas Leininger, Principal Planner

PUBLIC HEARING DATES

Planning Commission:	N/A
Board of Supervisors:	February 8, 2022, 5:00 p.m.

FACTORS FAVORABLE

1. With the proposed conditions, staff finds the proposal compatible with the surrounding zoning and development.

2. Impacts: See Impact Analysis on Page 3.

FACTORS UNFAVORABLE

1. Impacts: See Impact Analysis on Page 3.

SUMMARY STAFF RECOMMENDATION

Approval, subject to the conditions listed in the attached resolution.

PROJECT DESCRIPTION

Mr. Corey Partlow has applied for a Special Use Permit (SUP) on behalf of his mother, Ms. Valerie Partlow, for a family subdivision creating one new single-family residential parcel consisting of ± 2.336 acres. The remainder parcel will be ± 3.687 acres. The new parcel will be owned by Mr. Partlow in accordance with family subdivision regulations. An SUP is required because the new parcel is between one and three acres in the A-1, General Agricultural District.

Staff has reviewed a preliminary plat and found that the proposal can meet Ordinance requirements. The property is located outside of the PSA and will require private well and septic systems. The Virginia Department of Health (VDH) has confirmed that the soils can adequately accommodate these systems. Should this application be approved, the applicant will need to submit a family subdivision agreement and complete the subdivision plat process. A family subdivision affidavit has already been received.

PLANNING AND ZONING HISTORY

There is currently a mobile home on the property that is considered legally nonconforming, which will stay on the remainder parcel. A dilapidated single-family dwelling on the property was demolished in August 2021.

SURROUNDING ZONING AND DEVELOPMENT

All surrounding parcels are zoned A-1, General Agricultural and designated Rural Lands in the 2045 Comprehensive Plan.

IMPACT ANALYSIS

See next page.

Impacts/Potentially Unfavorable Conditions	Status *(No Mitigation Required/Mitigated/Not Fully Mitigated)*	Considerations/Proposed Mitigation of Potentially Unfavorable Conditions
Public Transportation: Vehicular	No Mitigation Required	- The proposal is not anticipated to generate traffic exceeding a typical single-family residential unit. - Saddletown Road is classified as a local road and is a dead end street with no through access.
Public Transportation: Pedestrian/Bicycle	No Mitigation Required	- The proposal does not generate impacts that require mitigation for pedestrian/bicycle accommodations.
Public Safety	No Mitigation Required	- The proposal does not generate impacts that require mitigation for emergency services or facilities.
Public Schools	No Mitigation Required	- The proposal does not generate impacts that require mitigation for public schools.
Public Parks and Recreation	No Mitigation Required	- The proposal does not generate impacts that require mitigation for parks and recreation services or facilities.
Public Libraries and Cultural Centers	No Mitigation Required	- The proposal does not generate impacts that require mitigation for public libraries or cultural centers.
Groundwater and Drinking Water Resources	No Mitigation Required	- The proposal does not generate impacts that require mitigation for groundwater and drinking water resources. - VDH has confirmed that the on-site soils can adequately accommodate private well and septic systems.
Watersheds, Streams, and Reservoirs Located in the Skimino Creek Watershed	No Mitigation Required	- The proposal does not generate impacts that require mitigation to watersheds, streams, and reservoirs. - Erosion and sediment control measures and/or stormwater mitigation would be reviewed as part of the building permit for single-family dwellings.
Cultural/Historic Resources	No Mitigation Required	- The proposal does not generate impacts that require mitigation for cultural or historic resources.
Nearby and Surrounding Properties	No Mitigation Required	- The proposal does not generate impacts that are anticipated to negatively affect adjacent properties.
Community Character	No Mitigation Required	- The proposal does not generate impacts that require mitigation for community character.
Covenants and Restrictions	No Mitigation Required	- The applicant has verified that he is not aware of any covenants or restrictions on the property that prohibit the proposed use.

COMPREHENSIVE PLAN

The property is designated Rural Lands in the 2045 Comprehensive Plan. Recommended uses for Rural Lands include traditional agricultural and forestal activities, residences associated with agricultural and forestal activities, and certain uses which require very low intensity settings located in a manner that minimizes effects on agricultural and forestal activities. Recommended density is one unit per 20 acres.

This proposal has a gross density of approximately one unit per three acres, which exceeds the recommended density; however, staff finds that this family subdivision is not intensive enough to negatively impact the rural character of the street and is in conformance with Ordinance requirements for family subdivisions in the A-1, General Agricultural Zoning District.

PROPOSED SUP CONDITIONS

Proposed conditions are provided as Attachment No. 1.

STAFF RECOMMENDATION

Staff finds that the proposed family subdivision is compatible with the surrounding development and consistent with the intent of 2045 Comprehensive Plan. Staff recommends that the Board of Supervisors approve the application, subject to the conditions listed in the attached resolution.

TL/ap
SUP21-24_158SaddletwnRd

Attachments:
1. Resolution
2. Location Map
3. Master Plan (Preliminary Subdivision Plat)
4. Applicant Narrative

R E S O L U T I O N

CASE NO. SUP-21-0024. 158 SADDLETOWN ROAD, PARTLOW FAMILY SUBDIVISION

WHEREAS, the Board of Supervisors of James City County (JCC) has adopted by Ordinance specific land uses that shall be subjected to a Special Use Permit (SUP) process; and

WHEREAS, Mr. Corey Partlow, on behalf of Ms. Valerie Partlow, has requested an SUP to allow for a family subdivision creating one parcel of +/-2.336 acres and one remainder parcel of +/-3.687 acres in the A-1, General Agricultural District, located at 158 Saddletown Road, further identified as JCC Real Estate Tax Map No. 1530100045; and

WHEREAS, a public hearing was advertised, adjoining property owners notified and a hearing conducted on Case No. SUP-21-0024; and

WHEREAS, the Board of Supervisors is of the opinion that the SUP to allow for the above-mentioned family subdivision should be approved.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, does hereby approve Case No. SUP-21-0024 as described herein, subject to the following conditions:

1. *Plan*: This SUP is valid for a family subdivision for the creation of no more than one new lot of approximately 2.336 acres and one remainder parcel of approximately 3.687 acres (the "Subdivision") on property located at 158 Saddletown Road, further identified as JCC Real Estate Tax Map Parcel No. 1530100045 (the "Property"). The Subdivision shall be generally as shown on the plan drawn by Ironwood Surveying, PLC., titled, "Family Subdivision, Parcel ID No. 1530100045, 158 Saddletown Road, Property of Valerie Partlow," dated August 28, 2021.

2. *Commencement*: Final subdivision approval must be received from the County within 24 months from the issuance of the SUP or the SUP shall become void. The final subdivision shall be recorded within 180 days of final subdivision approval.

3. *Severance Clause*: The SUP is not severable. Invalidation of any word, phrase, clause, sentence, or paragraph shall invalidate the remainder.

_____
John J. McGlennon
Chairman, Board of Supervisors

ATTEST:

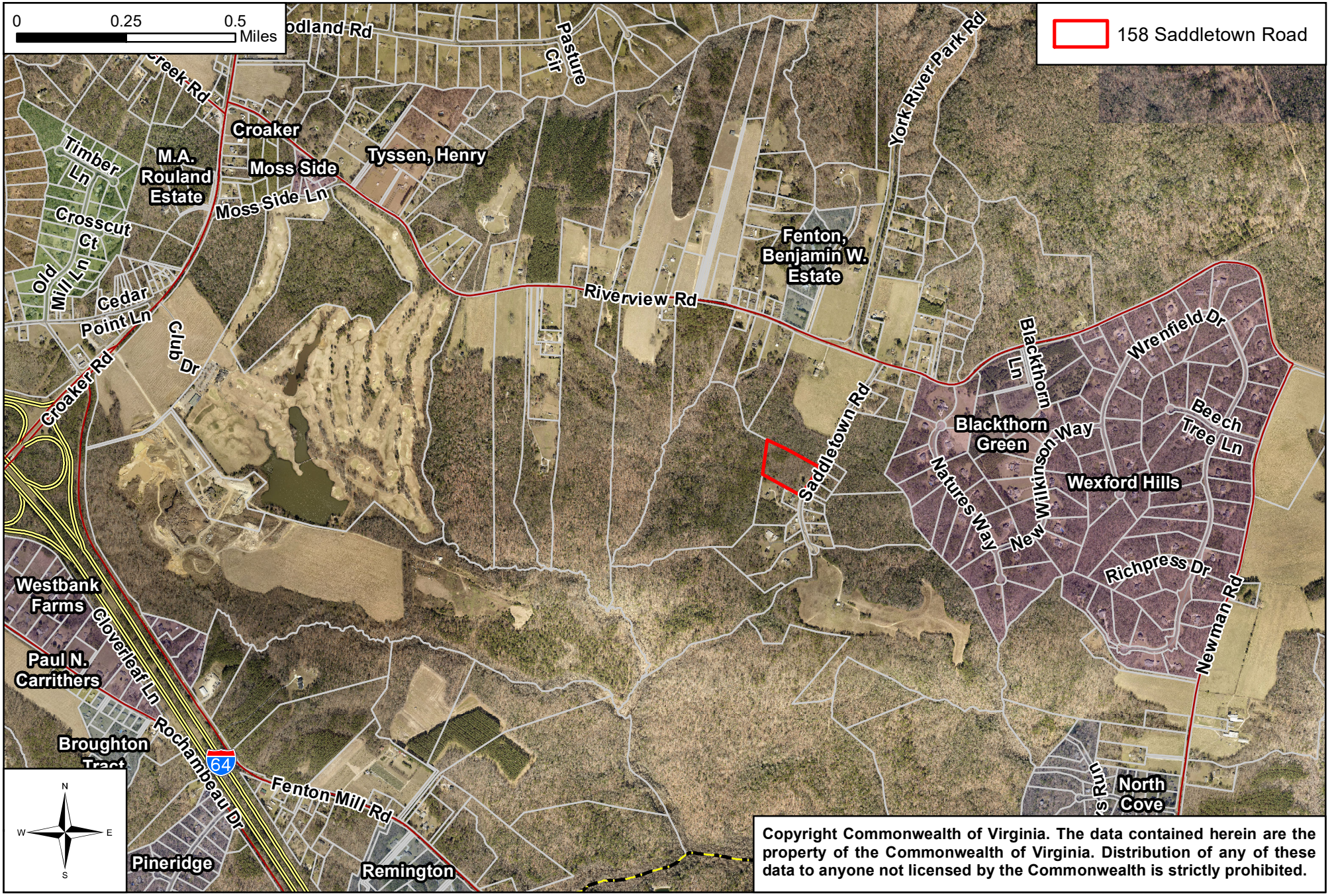
_____
Teresa J. Saeed
Deputy Clerk to the Board

	VOTES			
	AYE	NAY	ABSTAIN	ABSENT
ICENHOUR	____	____	____	____
HIPPLE	____	____	____	____
LARSON	____	____	____	____
SADLER	____	____	____	____
MCGLENNON	____	____	____	____

Adopted by the Board of Supervisors of James City County, Virginia, this 8th day of February, 2022.

SUP21-24_158SaddletwnRd-res

JCC SUP-21-0024
158 Saddletown Road, Partlow Family Subdivision



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OWNER'S CONSENT

THIS FAMILY SUBDIVISION OF LAND SHOWN ON THIS PLAT AND KNOWN AS "FAMILY DIVISION, PARCEL ID #1530100045, #158 SADDLETOWN ROAD, PROPERTY OF VALERIE PARTLOW" IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRE OF THE UNDERSIGNED OWNERS.

_____
VALERIE PARTLOW DATE

CERTIFICATE OF NOTARIZATION

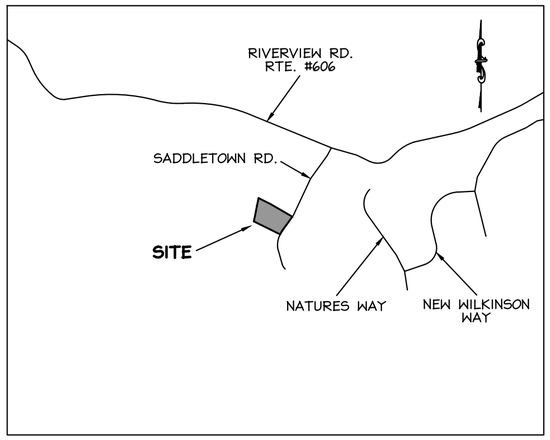
COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF _____

I, _____, A NOTARY PUBLIC IN AND FOR THE CITY/COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT THE PERSONS WHOSE NAMES ARE SIGNED TO THE FOREGOING WRITING HAVE ACKNOWLEDGED THE SAME BEFORE ME IN THE CITY/COUNTY AFORESAID.

GIVEN UNDER MY HAND THIS _____ DAY OF _____, 2021.

_____
SIGNATURE

MY COMMISSION EXPIRES:_____
NOTARY REGISTRATION NUMBER:_____



VICINITY MAP
SCALE:1"=2000'

NOTES:
1. NO TITLE REPORT FURNISHED.
2. EASEMENTS AND RESTRICTIONS MAY EXIST, WHICH ARE NOT SHOWN HEREON.
3. THE PROPERTY SHOWN HEREON IS LOCATED ON PARCEL ID #1530100045 AND ZONED A-1.
4. PARCEL LIES IN ZONE "X" PER FIRM PANEL #51095C0063D, DATED DECEMBER 16, 2015.
5. ALL NEW AND RELOCATED UTILITIES SHALL BE PLACED UNDERGROUND.
6. ALL NEW MONUMENTS SHALL BE SET IN ACCORDANCE WITH SEC. 19-34 THROUGH 19-36 OF THE JAMES CITY COUNTY SUBDIVISION ORDINANCE.
7. ON-SITE SEWAGE DISPOSAL SYSTEM INFORMATION AND SOILS INFORMATION SHOULD BE VERIFIED AND REEVALUATED BY THE HEALTH DEPARTMENT PRIOR TO ANY NEW CONSTRUCTION.
8. PRIVATE ON-SITE SEWAGE DISPOSAL SYSTEMS SHALL BE PUMPED OUT AT LEAST ONCE EVERY FIVE YEARS PER SECTION 23-9(b)(6) OF THE JAMES CITY COUNTY CODE.
9. ALL LOTS ARE SERVED BY 100% CAPACITY RESERVE DRAINFIELDS AND PRIVATE WELLS.
10. ANY UNUSED WELLS SHALL BE ABANDONED IN ACCORDANCE WITH STATE PRIVATE WELL REGULATIONS AND JAMES CITY COUNTY CODE.
11. PARCEL DOES CONTAIN RESOURCE PROTECTION AREA AS SHOWN PER JCC GIS.
12. UNLESS OTHERWISE NOTED, ANY DRAINAGE EASEMENTS SHALL REMAIN PRIVATE.

CERTIFICATE OF APPROVAL

THIS SUBDIVISION IS APPROVED BY THE UNDERSIGNED IN ACCORDANCE WITH EXISTING SUBDIVISION REGULATIONS AND MAY BE ADMITTED TO RECORD.

_____
SUBDIVISION AGENT OF JAMES CITY COUNTY DATE

_____
VIRGINIA DEPT. OF TRANSPORTATION DATE

_____
VIRGINIA DEPT. OF HEALTH DATE

AOSE CERTIFICATION

THIS SUBDIVISION IS APPROVED FOR INDIVIDUAL ONSITE SEWAGE SYSTEMS IN ACCORDANCE WITH THE PROVISIONS OF THE CODE OF VIRGINIA AND THE SEWAGE HANDLING AND DISPOSAL REGULATIONS (12 VAC 5-610-10 ET SEQ., THE "REGULATIONS").

THE SUBDIVISION WAS SUBMITTED TO THE HEALTH DEPARTMENT FOR REVIEW PURSUANT TO SECTION 32.1-163.5 OF THE CODE OF VIRGINIA WHICH REQUIRES THE VIRGINIA DEPARTMENT OF HEALTH TO ACCEPT PRIVATE SOIL EVALUATIONS AND DESIGNS FROM A LICENSED ONSITE SOIL EVALUATOR (OSE) OR A PROFESSIONAL ENGINEER WORKING IN CONSULTATION WITH AN OSE FOR RESIDENTIAL DEVELOPMENT.

THE VIRGINIA DEPARTMENT OF HEALTH IS NOT REQUIRED TO PERFORM A FIELD CHECK ON SUCH EVALUATIONS. THIS SUBDIVISION WAS CERTIFIED AS BEING IN COMPLIANCE WITH THE BOARD OF HEALTH'S REGULATIONS

BY:_____
OSE/PE NAME LICENSE # PHONE #

PURSUANT TO SECTION 360 OF THE REGULATIONS THIS APPROVAL IS NOT AN ASSURANCE THAT SEWAGE DISPOSAL SYSTEM CONSTRUCTION PERMITS WILL BE ISSUED FOR ANY LOT IN THE SUBDIVISION UNLESS THAT LOT IS SPECIFICALLY IDENTIFIED AS HAVING AN APPROVED SITE FOR AN ONSITE SEWAGE DISPOSAL SYSTEM, AND UNLESS ALL CONDITIONS AND CIRCUMSTANCES ARE PRESENT AT THE TIME OF THIS APPROVAL. THIS SUBDIVISION MAY CONTAIN LOTS THAT DO NOT HAVE APPROVED SITES FOR ONSITE SEWAGE SYSTEMS.

CERTIFICATE OF SOURCE OF TITLE

THE PROPERTY SHOWN ON THIS PLAT WAS CONVEYED BY SHIRLEY A. PALMER TO VALERIE PARTLOW BY DEED OF GIFT, DATED JULY 3, 2013 AND RECORDED IN THE OFFICE OF THE CLERK OF THE CIRCUIT COURT OF THE COUNTY OF JAMES CITY IN INST. #130016174.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THAT ALL OF THE REQUIREMENTS OF THE BOARD OF SUPERVISORS AND ORDINANCES OF THE COUNTY OF JAMES CITY, VIRGINIA, REGARDING THE PLATTING OF SUBDIVISIONS WITHIN THE COUNTY, HAVE BEEN MET.

_____
JASON M. SABEL, L.S. #2755 DATE

COMMONWEALTH OF VIRGINIA
JASON M. SABEL
Lic. No. 2755
LAND SURVEYOR

IRONWOOD
SURVEYING, PLC
7349 Diascund Creek Way
New Kent, VA 23124
Office: (540) 645-5708
www.ironwoodsurveying.com

REVISION:
COUNTY COMMENTS 11.19.21
COUNTY COMMENTS 1.4.22

PLAT SHOWING
FAMILY DIVISION
PARCEL ID #1530100045
#158 SADDLETOWN ROAD
PROPERTY OF
VALERIE PARTLOW
STONEHOUSE DISTRICT JAMES CITY COUNTY, VIRGINIA

JOB NO.: 20-672

DATE: 8-28-2021

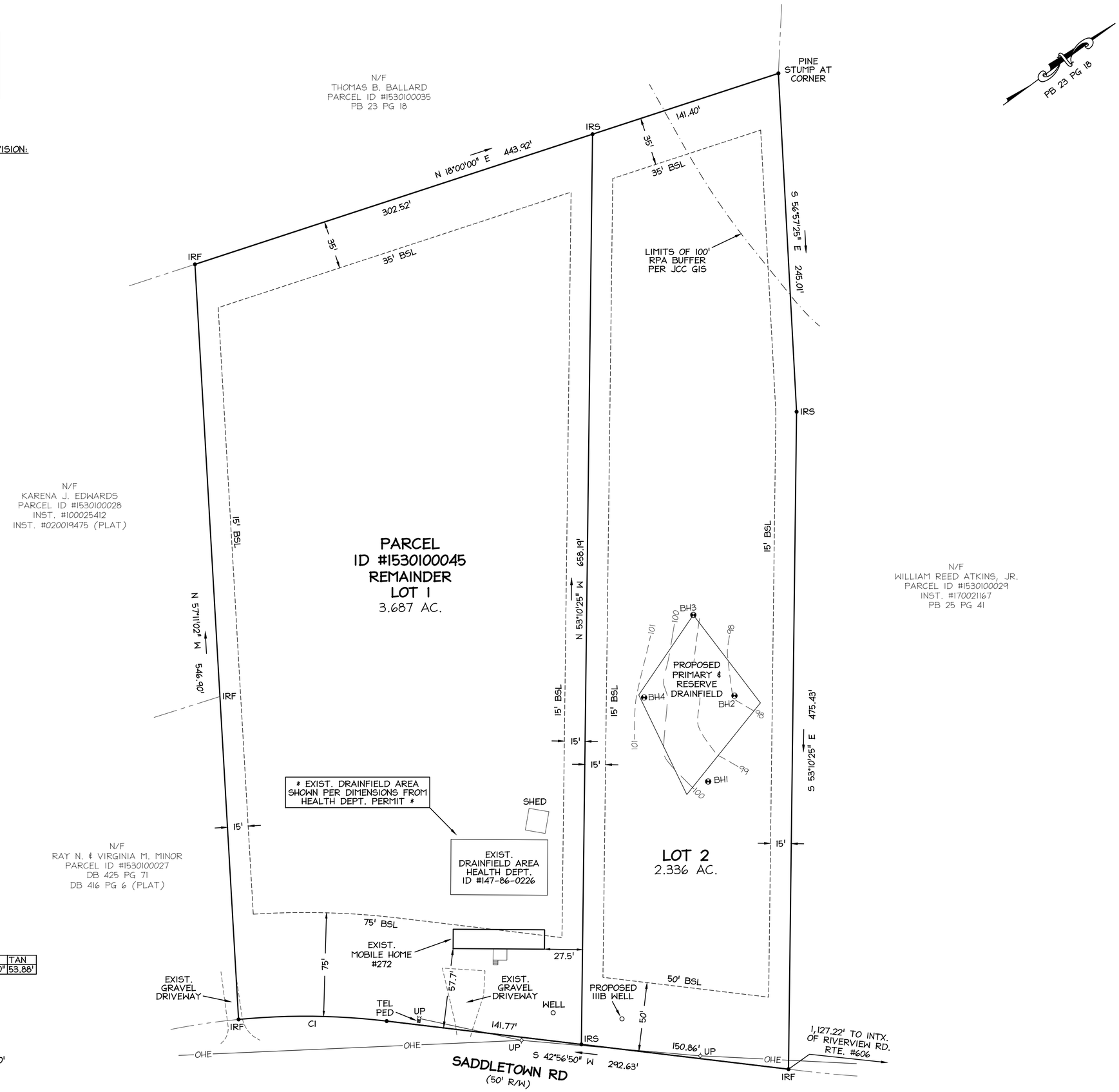
SCALE: 1"=50'

SHEET: 1 OF 2

AREA TABULATION:	
PARCEL 1530100045 (BEFORE)	6.023 AC.
LOT 1 REMAINDER	3.687 AC.
LOT 2	2.336 AC.
TOTAL	6.023 AC.

PROPOSED OWNERS AFTER FAMILY SUBDIVISION:
LOT 1 REMAINDER: VALERIE PARTLOW
LOT 2: COREY PARTLOW

ABBREVIATIONS:
IRF=IRON ROD FOUND
IRS=IRON ROD SET
UP=UTILITY POLE
TEL PED=TELEPHONE PEDESTAL
BSL=BUILDING SETBACK LINE



CURVE	RAD	ARC	CHORD	CH BRG	DELTA	TAN
C1	497.49'	107.34'	107.13'	S 36°45'58" W	12°21'43.80"	53.88'

0' 50' 100' 150'

COMMONWEALTH OF VIRGINIA
JASON M. SABEL
Lic. No. 2755
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STONEHOUSE DISTRICT JAMES CITY COUNTY, VIRGINIA

JOB NO.: 20-672

DATE: 8-28-2021

SCALE: 1"=50'

SHEET: 2 OF 2

Short narrative

The use of this proposed family Subdivision of 2.336 acres .Would be use as a primary residence for my family and I.This is the same road I grew up on .And I would like my kids to grow up here also. It's a good place to raise kids. There are a couple of families that have two or three generations that live in this area including my family. Starting with my great grandparents Henry and Louise James, grandparents Ward and Regina James, parents Thomas and Valerie Partlow.
This is why I am applying for a Special use permit.
The Remainder of the primary parcel will remain wooded.

Thank you for your consideration
Corey Partlow

.

AGENDA ITEM NO. G.4.

ITEM SUMMARY

DATE: 2/8/2022

TO: The Board of Supervisors

FROM: Thomas Wysong, Senior Planner II

SUBJECT: Z-19-0006 and SUP-19-0005. Hazelwood Farms - The Enterprise Center

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ATTACHMENTS:

	Description	Type
	Staff Report	Staff Report
	1. Ordinance	Ordinance
	2. Resolution	Resolution
	3. Location Map	Backup Material
	4. Proposed Master Plan	Exhibit
	5. Proposed Transportation Map	Exhibit
	6. Proposed Design Guidelines	Backup Material
	7. CIS	Backup Material
	8. Traffic Impact Analysis	Backup Material
	9. DRW Transportation Memo	Backup Material
	10. EO Phasing Policy	Backup Material
	11. Water & Sewer Graphic	Backup Material
	12. Public Input	Backup Material
	13. Signed Proffers	Backup Material
	14. Unapproved minutes of the January 5, 2022, Planning Commission meeting	Backup Material

REVIEWERS:

Department	Reviewer	Action	Date
Planning	Holt, Paul	Approved	1/25/2022 - 10:12 AM
Development Management	Holt, Paul	Approved	1/25/2022 - 10:12 AM
Publication Management	Pobiak, Amanda	Approved	1/25/2022 - 10:58 AM
Legal Review	Kinsman, Adam	Approved	1/28/2022 - 3:19 PM
Board Secretary	Saeed, Teresa	Approved	1/31/2022 - 8:31 AM
Board Secretary	Purse, Jason	Approved	2/1/2022 - 2:30 PM
Board Secretary	Saeed, Teresa	Approved	2/1/2022 - 2:54 PM

SUMMARY FACTS

Applicant:	Mr. Tim Trant, Kaufman & Canoles, P.C.
Land Owners:	Hazelwood Farms L.L.C., HHD, L.C., Larry L. Hazelwood, Deborah H. Drudge, and R.M. Hazelwood, III
Proposal:	Rezoning of approximately 328 acres from A-1, General Agricultural and B-1, General Business to EO, Economic Opportunity with Proffers to allow for up to 3,220,000 square feet of warehouse/industrial/office use and up to 75,000 square feet of commercial Accompanying this rezoning is a request for a Special Use Permit (SUP) to allow for the following: • fast food restaurants; • the manufacture and processing of textiles and textile products in structures more than 10,000 square feet; • heavy equipment sales and service with major repair under cover or screened with landscaping and fencing from adjacent property; • machinery sales and service with major repair under cover; • a convenience store pursuant to Section 24-11(a)(1); • any commercial building or group of buildings that exceeds 10,000 square feet of floor area pursuant to Section 24-11(a)(2) of the County Code; • any commercial building or group of buildings, not including office uses, which generates, or would be expected to generate, a total of 100 or more additional trips to and from the site during the peak hour of the operation pursuant to Section 24-11(a)(3) of the County Code; and buildings, additions, and expansions requiring an SUP pursuant to Section 24-11(b) of the County Code; and • extension of public water and sewer facilities.
Locations:	301 Old Stage Road 9211 Old Stage Road 275 Old Stage Road 9400 Barnes Road (portion south of I-64)
Tax Map/Parcel Nos.:	0440100015 0440100014 0440100013 0430100017
Current Zoning:	B-1, General Business A-1, General Agricultural
Proposed Zoning:	EO, Economic Opportunity with Proffers
Project Acreage:	The four parcels together total ± 328 acres
Comprehensive Plan:	Economic Opportunity
Primary Service Area: (PSA)	Inside
Staff Contact:	Thomas Wysong, Senior Planner II

PUBLIC HEARING DATES

Planning Commission: October 6, 2021, 6:00 p.m. (postponed)

January 5, 2022, 6:00 p.m.

Board of Supervisors: February 8, 2022

FACTORS FAVORABLE

1. Staff finds the proposed primary uses for this rezoning, and those requested by the SUP, align with the recommended primary uses for the Economic Opportunity (EO) designation in the Barhamsville Interchange Area in the adopted Comprehensive Plan The primary recommended uses include industrial, light industrial, office, medical/research, and/or tourist attraction uses.

2. Staff finds the proposal to be consistent with the Comprehensive Plan.

3. The applicant has proffered multiple transportation commitments that are intended to mitigate the proposed impacts of the development, improve the adjacent transportation network, and establish bicycle and pedestrian connections within the development and adjacent to nearby parcels.

4. The applicant has proffered to restrict access from Barnes Road, except for in the case of emergencies.

5. The applicant has proffered an overall master water and sanitary sewer plan in order to ensure the infrastructure is appropriately sized for total build-out and not handled on a section-by-section basis.

6. The applicant has proffered to complete water conservation standards to be approved by the James City Service Authority (JCSA).

7. The applicant has proffered design guidelines that exceed the requirements of the EO Zoning District.

8. With the voluntary proffers and the proposed SUP conditions, staff finds that the proposal will not negatively impact surrounding development.

9. This proposal passes the Adequate Transportation Facilities Test.

10. Impacts: See Impact Analysis on Pages 10-14.

FACTORS UNFAVORABLE

1. Impacts: See Impact Analysis on Pages 10-14.

CHANGES SINCE OCTOBER 6, 2021, PLANNING COMMISSION MEETING

In response to public comment received at the October 6, 2021, meeting, the applicant has revised the rezoning and SUP application proposal as follows:

<u>SUP Application</u>

- The applicant has removed the apartments and multifamily component from the SUP application. Therefore, no residential units are proposed as part of the Enterprise Center. Correspondingly, the SUP conditions specific to residential impacts have been removed.

- The applicant has removed the truck terminal component from the SUP application. Therefore, no truck terminals are proposed as part of the Enterprise Center. Correspondingly, the SUP conditions specific to the truck terminal have been removed.

- The applicant has increased the proposed square footage of the warehouse, industrial, and office uses from 2,920,000 to

3,220,000. Correspondingly, the SUP conditions have been updated to address this addition, with a 100-foot buffer now required along the Leisure Road right-of-way.

Master Plan

- The applicant has removed the residential uses/associated recreation facilities from Land Bay 6 and proposed industrial, wholesale, warehouse, office, and institutional use in its place.

- The applicant has revised the Urban Core from containing Land Bays 3 and 6 to containing only Land Bay 3.

Proffers

- The applicant has removed the three proffers specific to residential construction (The proffered parks and recreation facilities, the residential phasing, and the sustainability of residential construction).

PLANNING COMMISSION RECOMMENDATION

At its January 5, 2022, regular meeting, the Planning Commission recommended approval of this application with proposed proffers and conditions by a vote of 4-2.

CHANGES SINCE JANUARY 5, 2022, PLANNING COMMISSION MEETING

None.

SUMMARY STAFF RECOMMENDATION

Staff recommends that the Board of Supervisors approve the proposed rezoning and SUP application, subject to the proposed proffers and conditions.

PROJECT DESCRIPTION

Rezoning

Mr. Tim Trant has applied on behalf of Hazelwood Farms L.L.C. and Hazelwood, R.M. III Trustee & Larry L. Trustee & Drudge, Deborah H. Trustee to rezone approximately 328 acres of land located at 301 Old Stage Road, 9211 Old Stage Road, 275 Old Stage Road, and 9400 Barnes Road from A-1, General Agricultural and B-1, General Business to Economic Opportunity with proffers to allow for up to 3,220,000 square feet of warehouse/industrial/office use and up to 75,000 square feet of commercial.

Special Use Permit

Accompanying this rezoning is a request for an SUP to allow for certain uses which are listed in the EO District as specially permitted uses:

- fast food restaurants;
- the manufacture and processing of textiles and textile products in structures more than 10,000 square feet;
- heavy equipment sales and service with major repair under cover or screened with landscaping and fencing from adjacent property;
- machinery sales and service with major repair under cover; and
- extension of public water and sewer facilities.

In addition, the SUP request is to allow certain commercial uses or buildings as specified in Section 24-11:

- a convenience store pursuant to Section 24-11(a)(1);
- any commercial building or group of buildings that exceeds 10,000 square feet of floor area pursuant to Section 24-11(a)(2) of the County Code;

- any commercial building or group of buildings, not including office uses, which generates, or would be expected to generate, a total of 100 or more additional trips to and from the site during the peak hour of the operation pursuant to Section 24-11(a)(3) of the County Code; and
- buildings, additions, and expansions requiring a special use permit pursuant to Section 24-11(b) of the County Code.

The proposed proffers would only allow for one fast food restaurant, one convenience store with fuel sales, and one bank with drive-through on the property.

Site Layout

The Hazelwood Farms Enterprise Center is intended to be a center of major employment within the County. The Enterprise Center is a long-term project, meaning the applicant does not currently know the end users of the site or the exact locations of each use being proposed. As such, the proposed master plan shows the general layout of the Enterprise Center and the uses designated for each of the seven Land Areas of the property.

Regarding public water and sewer, the site design proposes to extend a water transmission main and sewer force main from the intersection of La Grange Parkway and Route 30 (at the entrance of Stonehouse Industrial Park) along Route 30, connecting to Route 718, and then serving the Enterprise Center from within the spine road. This is a distance of just under one mile. The entirety of this corridor is located inside the PSA, with the extensions then being available to other properties that do not currently have access to utilities.

The site design proposes access to the property solely through the two entrances from Route 746 as shown on the master plan. An internal "spine road" (to be designed as a boulevard and built to Virginia Department of Transportation (VDOT) standards) is the major transportation infrastructure proposed to provide access to the majority of the site. Bicycle and pedestrian facilities are proposed along this road and the frontage of Land Areas 3 and 6.

Land Area 3 is designated as the general location of the "Urban/Residential Core" which is the area of commercial development per the EO Zoning District. The proposed commercial development will be located within the boundaries of the "Urban/Residential Core" with the commercial uses being located once the maximum acreage of the Urban Core permitted by the Zoning Ordinance (33.87 acres) is built out within Land Area 3, the remaining land in Area 3 is intended for up to 100,000 square feet of office use. The proposed master plan proposes a "Frontage Retail Area" for Area 3, in which one fast food restaurant with drive-through, one convenience store with fuel sales, and one bank with drive-through would be allowed to be located.

For the remaining six Land Areas (Land Areas 1, 2, 4, 5, 6, and 7), the applicant is proposing up to 3,220,000 square feet of warehouse, office, and industrial use; though Land Area 7, which buffers the majority of Upper County Park from the Enterprise Center, is designated solely for recreational area and open space. In order to mitigate potential impacts to external properties and Upper County Park, the SUP conditions propose restrictions for certain special uses:

One Fast food Restaurant: Land Area 3
Textile Manufacturing: Land Area 1, 2, or 5
Heavy Equipment Sales and Service: Land Area 1, 2, or 5
Machinery Sales and Service: Land Area 1, 2, or 5
One Convenience Store with Fuel Sales: Land Area 3
One Bank with Drive-through: Land Area 3

For textile manufacturing, heavy equipment sales and service, and machinery sales and services, the proposed conditions include a set-back of 1,000 feet from the Barnes Road right-of-way if any of these uses are proposed in Land Area 1.

The applicant has proffered design guidelines for all development within the Enterprise Center. These design guidelines commit to protecting the viewshed from adjacent roadways, requiring bicycle and pedestrian connectivity, designing for public access improvements, parking standards, building pattern and form, and special design requirements for the SUP uses being applied for in this application.

Public Transportation: Vehicular

The scale of this proposal requires the submittal of a Transportation Impact Analysis (TIA). The TIA examines the existing conditions of vehicular traffic, including Level of Service (LOS), with a focus on the roads and intersections serving and impacted by the proposed development of the Hazelwood Enterprise Center and the Village Center. The TIA also examines the projected traffic impacts of the Hazelwood proposal with proposed improvements on these roads and intersections, as well as the impact of the development of the Moss Creek and Stonehouse projects, which are located on the other side of Route 30 from the Village Center.

For the Enterprise Center, the Route 30/Route 746 (Old Stage Road) intersection and the Route 30/Westbound I-64 ramps are the two existing intersections analyzed within the TIA. Neither of these intersections are signalized or programmed for improvement by VDOT. Both are expected to have increased demand as a result of the development of the Enterprise Center. The applicant is proposing within the proffers a multi-stepped approach to improve the road network and mitigate the traffic impacts that are anticipated for the Enterprise Center.

The first step is completing the TIA and gaining approval from VDOT for this analysis. The TIA has been reviewed by the County, Kimley-Horn and Associates (KHA), and VDOT, with KHA recommending approval and VDOT issuing approval. The approved TIA serves as the guide for the proposed improvements accompanying this rezoning.

The second step is ensuring the appropriate improvements are reviewed and scheduled for implementation. Per the proffers, a Signal Justification Report (SJR) for the Route 30/Route 746 intersection and Phasing Plan for both intersections will need to be approved prior to the submittal of the first site plan for the Enterprise Center. The developer will be required to meet with the County and VDOT prior to submittal of both items to discuss traffic study requirements and review any updated road improvements that have occurred, been proffered by others, or funded by VDOT.

The third step is utilizing the Phasing Plan to ensure the necessary road improvements are installed as the Enterprise Center is developed. The Phasing Plan is proffered to include the improvements within the TIA, which are shown on the master plan and are intended to mitigate traffic impacts. Please see the table on the next pages for a summary of the LOS analysis of these road facilities.

Hazelwood TIA LOS Analysis						
Road/ Intersection (Project site impacted in bold)	*Current Status*	*Current Overall LOS*	*2030 Projected Overall LOS Without Hazelwood*	*Proposed Hazelwood Improvement (Proffered or Conditioned)*	*2030 Projected Overall LOS With Hazelwood*	*2030 Projected Overall LOS With Hazelwood, Moss Creek, and Stonehouse Developed**
Route 30/Fieldstone Parkway **Village Center**	Unsignalized	Level C or >	Level C or >	- Signalization. - Addition of double left-turn lanes on northbound Route 30 at property entrance. - Addition of right-turn lane on southbound Route 30 at property entrance. - Property entrance with four exit lanes and two entering lanes. - Shared use path.	Level C or >	Level C
Route 30/I-64 Westbound Ramps **Enterprise Center**	Unsignalized	Level C or >	Level C or >	- Signalization. - Adjustment of pavement for improvement.	Level B	Level B
Route 30/I-64 Eastbound Ramp A	Unsignalized	Level B or >	Level B or >	- Signalization.	Level B	Level A

Route 30/Old Stage Road **Enterprise Center**	Unsignalized	Level C or >	Level C or >	- Signalization. - Addition of second left-turn lane on northbound Route 30. - Extension of right-turn lane on southbound Route 30 at Route 746 Old Stage Road to make a continuous lane with merging lane from I-64 off ramp onto Route 30. - Third northbound through lane on Route 30 at approach to Route 746 Old Stage Road and continuing to drop off lane at ramp to I-64 east. - Improvements to Route 746 Old Stage Road as shown on the master plan. - Adding second westbound approach lane and taper on VDOT frontage road. - Restriction to two entrances on Old Stage Road as shown on master plan.	Level B	Level C
Route 30/Barnes Road **Village Center**	Unsignalized	Level C or >	Level C or >	- None, Remain Unsignalized.	Level D or >	Level F**
I-64 Merges/Diverges **Enterprise Center/Village Center**	Unsignalized	Level B or >	Level B or >	- See continuous turn lane proposed for Route 30/Old Stage Road.	Level B or >	Level C or >

**90/100 Cycles analysis from TIA referenced in this column. TIA also includes 70-second cycle analysis, but 90/100 cycle deemed more appropriate.*
***See DRW Consultants LLC Memo dated 1/14/2020 for context on this intersection. The possibility of a U-turn at the signalized Fieldstone Parkway is presented as a potential solution to this LOS issue and can be expected to be examined during the SJR review of the Fieldstone Parkway and Route 30 intersection.*

In addition to the improvements detailed in the preceding table, the applicant has proffered to restrict access to Barnes Road (except in the case of emergencies) and included a bus stop in Land Area 3. In order to ensure development does not exceed the bounds of the TIA, the applicant has proffered development of the property cannot exceed 944 PM peak hour trips as determined by the most recent edition of the Institute of Transportation Engineers Trip Generation Manual (the ITE Manual) at the time of each site plan approval for the development of the property. Peak hour trips will be calculated and submitted with each development plan for the property.

Roadway congestion information from the Comprehensive Plan is presented below. As shown in the table, the most recent LOS data for each of the three facilities related to this proposal have a LOS in the A-C range. For each of these facilities, this LOS is anticipated to remain in this range in 2045.

Future Roadway Congestion Level

Facility	From	To	2017 Weekday Volume	2045 Weekday Volume	2017 PM Peak Period LOS	2045 PM Peak Period LOS
Barhamsville Road (Route 30)	I-64	Route 60	19,004	32,280	A-C	A-C
Old Stage Road (Route 30)	New Kent CL	Barnes Road (Route 601 S)	14,943	19,225	A-C	A-C
Old Stage Road (Route 30)	Barnes Road (Route 601 S)	I-64	8,315	13,680	A-C	A-C

The County adopted the Adequate Transportation Facilities Test by resolution on August 14, 2018. This policy requires for a proposed SUP or rezoning to be tested during the application process to ensure that transportation facilities are adequate to mitigate traffic impacts. Per the adopted policy, a proposed rezoning or special use permit application will pass the test if:

i. No off-site improvements are required by the TIA that is approved by both the Planning Director and the Virginia Department of Transportation; or
ii. All off-site improvements recommended by a TIA that is approved by both the Planning Director and the Virginia Department of Transportation are guaranteed in a form approved by the Planning Director and County Attorney.

The proffered transportation improvements (which are recommended within the approved TIA) accompanying this rezoning ensure that this proposal passes the Adequate Transportation Facilities Test.

Economic Opportunity Construction Phasing Policy

In 2011, the Board of Supervisors adopted a phasing policy to provide guidelines for development of property zoned for EO (see Attachment No. 10). This policy is applicable when residential units are proposed within the EO District. Since no residential dwelling units are proposed, this policy is no longer applicable to this application.

PLANNING AND ZONING HISTORY

The current zoning for the properties has been in place since the 1980s and is detailed below:

301 Old Stage Road: B-1, General Business
9211 Old Stage Road: B-1, General Business
275 Old Stage Road: A-1, General Agricultural/B-1, General Business
9400 Barnes Road: A-1, General Agricultural

These parcels have been owned by the Hazelwood family and in agricultural use for decades. The parcel addressed 9400 Barnes Road used to be located within the Barnes Swamp Agricultural and Forestal District (AFD) but was withdrawn in 2006. The single-family home located on the parcel addressed 301 Old Stage Road is accessory to the farm and was built in 1955.

SURROUNDING ZONING AND DEVELOPMENT

North:	LB, Limited Business PUD-R, Planned Unit Development Residential
West:	A-1, General Agricultural
South:	PL, Public Lands A-1, General Agricultural
East:	B-1, General Business

The subject property is located east of Barnes Road (Route 601), south of I-64, west of Old Stage Road (Route 746), and north of Leisure Road. Upper County Park abuts the Property directly to the south.

IMPACT ANALYSIS

Impacts/Potentially Unfavorable Conditions	Status *(No Mitigation Required/Mitigated/Not Fully Mitigated)*	Considerations/Proposed Mitigation of Potentially Unfavorable Conditions
Public Transportation: Vehicular	Mitigated	See discussion on Page 5.
Public Transportation: Pedestrian/Bicycle	Not Fully Mitigated	- The County's *Pedestrian Accommodation Master Plan* requires a multiuse path along the southern frontage of Route 30. The *Regional Bikeways Map* proposes a bike lane along the southern frontage of Route 30 for the small portion abutting this property. - Pursuant to Section 24-35 of the Zoning Ordinance, the proposed improvements shown on these maps are required to be shown on the site plan and installed at development. The bike lane will be further evaluated during the site plan review process. **Proffers** - This proposal includes a proffer to construct the portion of the multiuse path fronting Route 30 in accordance with the master plan and includes the continuation of said multiuse path along the frontage of Old Stage Road (Route 746), the internal spine road, and the portion of the property abutting Leisure Road, as shown on the master plan. **Proposed SUP Conditions** - Condition No. 9 requires the multiuse path to be guaranteed prior to land disturbance and constructed prior to the issuance of the first commercial Certificate of Occupancy. This condition also requires a connection be provided between the multiuse path abutting Leisure Road and the interior of Upper County Park. - Condition No. 17 ensures an internal traffic signage plan shall be submitted with site plans, which helps ensure pedestrian and cyclist safety. - Condition No. 19 requires internal pedestrian connections to be provided on the property.
Public Safety	No Mitigation Required	- Located within a six-minute radius of Fire Station 1. - The proposal does not generate impacts that require mitigation to the County's emergency services or facilities.

Impacts/Potentially Unfavorable Conditions	Status *(No Mitigation Required/Mitigated/Not Fully Mitigated)*	Considerations/Proposed Mitigation of Potentially Unfavorable Conditions
Public Schools	No Mitigation Required	- This proposal does not generate impacts that require mitigation to the public school system
Public Parks and Recreation	No Mitigation Required	- This proposal does not generate impacts that require mitigation to the parks and recreation system.
Public Libraries and Cultural Centers	No Mitigation Required	- The proposal does not generate impacts that require mitigation to public libraries or cultural centers.
Groundwater and Drinking Water Resources	Mitigated	- The Enterprise Center Master Plan proposes to extend a transmission main and force main from the intersection of La Grange Parkway and Route 30 (at the entrance of Stonehouse Industrial Park) up Route 30 and then serving the Enterprise Center from within the spine road. JCSA has reviewed and approved this conceptual proposal on the master plan, as well as the projected water and sewer flows within the CIS. The Master Plan also shows a 50-foot public utility easement in the event that future looping of the water system under I-64 should be pursued. **Proffers** - The applicant has proffered the submittal of an overall master water and sanitary sewer plan for the property, to be reviewed and approved by JCSA prior to any subdivision or development on the property. The applicant has also proffered assurances to develop water conservation standards to be approved by JCSA. **Proposed SUP Conditions** - Condition No. 4 requires the developer to consider designing the stormwater systems such that stormwater can be collected for irrigation. Furthermore, this condition prohibits the JCSA public water supply from being used for irrigation. - The conditions specific to convenience stores with fuel sales, manufacturing and processing of textiles, and heavy equipment sales and service/machinery sales and service (Condition Nos. 21, 22, and 23) require a Spill Prevention, Control and Countermeasures Plan be provided prior to issuance of a land disturbance permit.

Impacts/Potentially Unfavorable Conditions	Status *(No Mitigation Required/Mitigated/Not Fully Mitigated)*	Considerations/Proposed Mitigation of Potentially Unfavorable Conditions
Watersheds, Streams, and Reservoirs	Mitigated	- The master plan shows a conceptual layout for stormwater management facilities, which includes Best Management Plans for each of the Land Areas within the Enterprise Center. The property is located within the Diascund Creek Watershed, which does not have a currently adopted watershed management plan. The Proposed SUP condition requires compliance with this future watershed management plan, once the plan is created by the County. **Proffers** - The applicant has submitted a proffer to work with the Colonial Soil and Water Conservation District to create a nutrient management plan for each portion of the property proposed for development. **Proposed SUP Conditions** - Condition No. 20 requires the submittal of a Master Stormwater Management Plan meeting a higher standard than what is required by the County Ordinance, including compliance with the future Diascund Watershed Management Plan.
Cultural/Historic	Mitigated	- Per the County's Geographic Information System, this property is identified as a Moderate sensitive area on the James City County archaeological assessment, meaning no archaeological study is required for these applications as part of the legislative submittal. There is one archaeological site of intact deposits (JC393) located on the southwest portion of the property in Land Area 4. Per Section 24-145 of the Zoning Ordinance, an archaeological study and natural resource inventory will be required at the development plan stage, which will inform the treatment of this site.

Impacts/Potentially Unfavorable Conditions	Status *(No Mitigation Required/Mitigated/Not Fully Mitigated)*	Considerations/Proposed Mitigation of Potentially Unfavorable Conditions
Nearby and Surrounding Properties	Mitigated	**Proposed SUP Conditions** - The 34-acre parcel (Land Area 7) within the Enterprise Center that abuts the majority of Upper County Park is designated for Recreation Area/Open Space on the master plan and includes a 100-foot Resource Protection Area buffer, which provides a transition to Upper County Park and is anticipated to mitigate impacts. - Condition No. 6 requires a 50-foot vegetated Community Character Corridor (CCC) buffer along Routes 30 and 746 to screen the project from nearby properties. - Condition No. 7 requires a 50-foot vegetated buffer with additional evergreen plantings along I-64 to screen development in adjacent Land Areas. - Condition No. 8 requires a 100-foot vegetated buffer with additional evergreen plantings along the Barnes Road and Leisure Road right-of-way to screen the project from nearby residential properties. - Condition No. 11 limits the height of lighting fixtures and states that lighting shall not be routinely illuminated at night. - Condition No. 16 requires screening of all dumpsters, ground mounted HVAC, mechanical units, and cart corrals. - Condition No. 21 (Convenience Stores with Fuel Sales) limits outside displays, sale, or storage, and intercom and speaker noise. - Condition No. 22 (Manufacturing and Processing of Textiles) and Condition No. 23 (Heavy Equipment Sales and Service/Machinery Sales and Service) prohibits outside storage of materials, requires the use to occur within a fully enclosed building with no outside evidence of dust, noise, odor, or other objectionable effect.

Impacts/Potentially Unfavorable Conditions	Status *(No Mitigation Required/Mitigated/Not Fully Mitigated)*	Considerations/Proposed Mitigation of Potentially Unfavorable Conditions
Community Character	Mitigated	**Proffers** - The applicant has provided proffers limiting the uses most impactful to community character: fast food restaurant with drive-through (one maximum), convenience store with fuel sales (one maximum) and bank with drive-through (one maximum). - The applicant has proffered design guidelines for all development on the property, which exceeds the requirements of the EO Zoning District. **Proposed SUP Conditions** - Condition No. 5 requires the proposed spine road to include street tree planting in order to create a streetscape effect. Per the proffered design guidelines, this spine road will be of boulevard design. - Condition No. 6 requires a 50-foot vegetated CCC buffer along Route 30. This segment of Old Stage Road (Route 30) is designated as a Wooded CCC. - Condition No. 13 requires each site plan submitted to include the final architectural design for all buildings and include general elevations of the buildings, as well as the view of all sides of the building visible from Old Stage Road (Routes 30 and 746) or Leisure Road for the Director of Planning's review and approval. - Condition No. 14 requires enhanced site design for Land Areas 3 and 6 which establishes higher standards for certain building facades, parking location and design, uses with drive through elements, and warehouse uses operated as a mini storage. - Condition No. 15 requires free-standing signage to be externally illuminated monument style signs not to exceed 8 feet in height, with brick base or similar material.

Comprehensive Plan

The Comprehensive Plan states that the use of land should be consistent with the capacity of existing and planned public facilities and services and the County's ability to provide such facilities and services. The Plan also states "expect developments subject to zoning or special use permit review to mitigate their impacts." Information on impacts and the mitigation provided by this application are included in this staff report.

The property is designated Economic Opportunity on the Comprehensive Plan Future Land Use Map. The property is further identified as Economic Opportunity-Barhamsville Interchange Area. The following general guidance is stated for the EO designation:

Economic Opportunity Designation

"Lands designated as Economic Opportunity are intended primarily for economic development, increased non- residential tax base and the creation of jobs. The lands should be at strategic locations in the County relative to transportation, utilities infrastructure and adjacent uses, and the lands should only be developed consistent with comprehensive area/corridor master plans."

Staff finds the proposed rezoning and SUP application is consistent with the primary intention of the Economic Opportunity Designation of economic development and job creation.

"The principal uses and development form should maximize the economic development potential of the area and encourage development types that have certain attributes, principally that they have a positive fiscal contribution, provide quality jobs, enhance community values, are environmentally friendly and support local economic stability. Master planning is at the core of this designation, and no development should occur unless incorporated into area/corridor master planning efforts which should address environmentally sensitive areas, available infrastructure (roads, water, sewer, transit, etc.), community character and context, public facilities and adjacent land uses to include lands in adjacent jurisdictions. The intent of this designation is to include parcels with this designation in the PSA (where not already included) pending the outcome of the master planning efforts."

Staff finds that the proposed, principal use of the property for industrial, wholesale, warehouse, office, and institutional use, coupled with the proffered design guidelines, is consistent with the intentions for this designation. Furthermore, the master planning of these properties, along with the submitted proffers and proposed SUP conditions, demonstrate consistency with each of the features described above.

The master planning efforts may take the form of public-private or private-private partnerships; if public-private, the landowner(s) would need to make the majority of the investment. These area/corridor master planning efforts should phase development to be in step with, and provide for, adequate amounts or capacities of roads, water, sewer, transit, bicycle and pedestrian facilities, fire stations, police and general government services, parks and recreation facilities, schools and other facilities, and service needs generated by the development. The master plan for the area should also demonstrate appropriate variation in uses, densities/intensities, pattern, and design such that new development is compatible with the existing character of surrounding areas. If an individual landowner in lands designated EO does not wish to participate in the master planning effort, such land shall be recognized and adequate buffers provided in the master plan to protect the current use of that land. Development should be designed to encourage trips by alternative transportation modes and should be concentrated on portions of the site to avoid sensitive environmental features and respect viewsheds from historic and Community Character areas and corridors."

Staff finds that the applicant team, which is a private-private partnership of the landowners, engineers, land planners, environmental planners, architects and traffic consultants, has developed a master plan that, in conjunction with the proffers, design guidelines, and proposed SUP conditions, provides adequate amounts or capacities of the infrastructure listed above. Furthermore, the proposed special uses and "by-right" uses in the EO District permit a use mixture that allows for the variation in uses, densities/intensities, pattern, and design needed to align with this designation. Finally, the proposed multiuse paths allow for alternative transportation trips, while the proposed SUP conditions for use, location, and buffering help respect viewsheds and Route 30, which is a CCC.

Economic Opportunity-Barhamsville Interchange Area

"For the I-64 Exit 227 Interchange Area, the primary suggested uses include industrial, light industrial, office, medical/research, and/or tourist attraction uses. Primary uses shall follow the recommendations for the general EO designation described above. Development should refer to the commercial/industrial development standards. Retail commercial uses should be limited in amount and type to support the primary uses."

Staff finds the uses within the EO Zoning District and the distinct uses applied for via SUP to be consistent with the specific recommended uses for the Barhamsville Interchange Area Designation.

"As expressed in the general Economic Opportunity language, the master plan for this area should demonstrate appropriate variation in uses, densities/ intensities, pattern, and design such that new development is compatible with the existing character of surrounding areas. In particular for this site, buffers, open space or other similar mechanisms should be used along the southern and western property lines in order to provide a transition to areas designated Rural Lands and Park, Public and Semi-Public Open Space. These parcels constitute a gateway into the County along I-64 and Route 30 which should be reflected in the development's architectural design, landscaping and buffering."

Staff finds the master plan, in conjunction with the proposed proffers, design guidelines, and proposed SUP conditions, is consistent with this expectation. The proposed SUP conditions require a 100-foot vegetated buffer along the Barnes Road right-of-way on the western and southernmost property line, providing a transition to areas designated Rural Lands. The 34-acre parcel (Land Area 7) within the Enterprise Center that abuts the majority of Upper County Park is designated for Recreation Area/Open Space on the master plan and includes a 100-foot RPA buffer, which provides a transition to Upper County Park, which is designated Open Space or Recreation on the County Land Use Map. This application includes proffered design guidelines and proposed SUP conditions requiring higher design, site location, enhanced landscaping, and architectural standards that ensure these gateway parcels are properly buffered and protect community character.

"Transportation is a key component of this Economic Opportunity (EO) area, with proximity to the interstate interchange as an important driver. The phasing and intensity of future development should safeguard this important element by maintaining adequate levels of service at the interchange and surrounding roadways. The primary access for these EO parcels should be an internal access road that connects to Old Stage Road/Route 30. A secondary access onto Barnes Road could be considered depending on the type of development that is ultimately proposed, as well as a more thorough analysis of the adequacy and safety of Barnes Road to handle traffic both from the north and the south."

Staff finds that this proposal meets this expectation. The phasing and intensity of development on the property is constrained by the transportation proffers, which require for the submittal of signal justification reports and phasing plans to ensure that traffic impacts do not overwhelm the infrastructure. Primary access to the site is

proposed primarily through an internal access road, while Barnes Road access has been prohibited via proffer. Furthermore, the applicant has submitted a TIA and proffered traffic improvements that VDOT and the County have deemed adequate to accommodate traffic and ensure safe and orderly development of the site.

"Any residential uses should be subordinate to and in support of the primary economic development uses and only located on the periphery of the property in areas that are not suitable for economic development uses. In addition, the location and amount of any residential uses should be depicted as an integrated element of the larger master plan for the area, should be limited to the amount or percentage allowed in the Economic Opportunity Zoning District, and should not be developed prior to a significant portion of the primary economic development uses."

There are no residential units proposed for this application.

"New development should be of a design, scale and intensity that is complementary to the development standards for the Stonehouse mixed use area."

Although the Stonehouse Mixed Use development standards have a greater emphasis on the "complete communities concept" and are more oriented towards residential, urban scale development when compared with the EO designation, staff finds the Enterprise Center proposal to be generally consistent with this expectation, due to its proffered design guidelines, SUP conditions specific to design, and alternative transportation accommodations.

Goals Strategies and Actions

Staff also finds that this proposal generally aligns with multiple Goals, Strategies, and Actions (GSAs) within the Comprehensive Plan.

Land Use

This application aligns with multiple GSAs within the Land Use section. The GSAs in the Land Use section support master planning that emphasizes the economic potential of interchange areas by promoting office and industry uses, encourages multiple uses commercial and industrial uses within nodes inside the PSA, and promotes the inclusion of bicycle and pedestrian facilities within the new developments. The GSAs also supports development that aligns with the specific guidelines found within the specific EO subarea designation.

Economic Development

This application aligns with multiple GSAs within the Economic Development section. The GSAs in the Economic Development section supports the development of a diverse economy, with non-retail core businesses, industrial and manufacturing businesses being some of the sectors recommended for approval.

STAFF RECOMMENDATION

Staff recommends that the Board of Supervisors approve the proposed rezoning and SUP application, subject to the proposed proffers and conditions.

TW/md
RZ19-6SUP19-5HazelwdFmsEC

Attachments:
1. Ordinance
2. Resolution
3. Location Map
4. Proposed Master Plan
5. Proposed Transportation Improvements Location Map
6. Proposed Design Guidelines
7. Community Impact Statement
8. Traffic Impact Analysis
9. DRW Memos
10. Economic Opportunity Construction Phasing Guidelines
11. Water and Sewer Graphic
12. Public Input
13. Signed Proffers
14. Unapproved minutes of the January 5, 2022, Planning Commission meeting

ORDINANCE NO. _____

AN ORDINANCE TO AMEND THE ZONING DISTRICT MAPS OF JAMES CITY COUNTY, VIRGINIA, TO REZONE APPROXIMATELY 328 ACRES LOCATED AT 301 OLD STAGE ROAD (COUNTY TAX MAP NO. 0440100015), 9211 OLD STAGE ROAD (COUNTY TAX MAP NO. 0440100014), 275 OLD STAGE ROAD (COUNTY TAX MAP NO. 0440100013), AND 9400 BARNES ROAD (PORTION SOUTH OF I-64) (PORTION OF COUNTY TAX MAP NO. 0430100017) FROM A-1, GENERAL AGRICULTURAL AND B-1, GENERAL BUSINESS TO ECONOMIC OPPORTUNITY WITH PROFFERS AS DESCRIBED IN CASE NO. Z-19-0006

WHEREAS, Mr. Tim Trant of Kaufman & Canoles, P.C., on behalf of Hazelwood Farms L.L.C., HHD, L.C., Larry L. Hazelwood, Deborah H. Drudge, and R.M. Hazelwood, III, has applied to rezone approximately 328 acres as described above; and

WHEREAS, a public hearing was advertised, adjoining property owners notified, and a hearing conducted on Case No. Z-19-0006; and

WHEREAS, the Planning Commission of James City County, Virginia, following its consideration on January 5, 2022, recommended approval of Case No. Z-19-0006 by a vote of 4-2; and

WHEREAS, the Board of Supervisors of James City County, Virginia, finds Case No. Z-19-0006 to be required by public necessity, convenience, general welfare, and good zoning practice.

NOW, THEREFORE, BE IT ORDAINED by the Board of Supervisors of James City County, Virginia, that Case No. Z-19-0006 is hereby approved as described therein and the voluntary proffers are accepted.

_____
John J. McGlennon
Chairman, Board of Supervisors

ATTEST:

_____
Teresa J. Saeed
Deputy Clerk to the Board

	VOTES			
	AYE	NAY	ABSTAIN	ABSENT
ICENHOUR	____	____	____	____
HIPPLE	____	____	____	____
LARSON	____	____	____	____
SADLER	____	____	____	____
MCGLENNON	____	____	____	____

Adopted by the Board of Supervisors of James City County, Virginia, this 8th day of February, 2022.

Z19-6OldStageRd-ord

R E S O L U T I O N

CASE NO. SUP-19-0005 HAZELWOOD FARMS - ENTERPRISE CENTER

WHEREAS, the Board of Supervisors of James City County, Virginia, has adopted by Ordinance specific land uses that shall be subjected to a Special Use Permit (SUP) process; and

WHEREAS, Mr. Tim Trant of Kaufman & Canoles, P.C. has applied on behalf of Hazelwood Farms L.L.C., HHD L.C., Larry L. Hazelwood, Deborah H Drudge, and R.M. Hazelwood, III, for an SUP on properties at 301 Old Stage Road, 9211 Old Stage Road, 275 Old Stage Road, and the portion of 9400 Barnes Road located south of Interstate 64, further identified, respectively, as James City County Real Estate Tax Map Parcel Nos. 0440100015, 0440100014, 0440100013, and that portion of 0430100017 lying south of Interstate 64 (collectively the "Property"); and

WHEREAS, the requested SUP on the Property would allow for fast food restaurants; the manufacture and processing of textiles and textile products in structures more than 10,000 square feet; heavy equipment sales and service with major repair under cover or screened with landscaping and fencing from adjacent property; machinery sales and service with major repair under cover; a convenience store pursuant to Section 24-11(a)(1); any commercial building or group of buildings that exceeds 10,000 square feet of floor area pursuant to Section 24-11(a)(2) of the County Code; any commercial building or group of buildings, not including office uses, which generates, or would be expected to generate, a total of 100 or more additional trips to and from the site during the peak hour of the operation pursuant to Section 24-11(a)(3) of the County Code; buildings, additions, and expansions requiring an SUP pursuant to Section 24-11(b) of the County Code; and the extension of public water and sewer facilities at; and

WHEREAS, the Planning Commission, following its public hearing on January 5, 2022, recommended approval of Case No. SUP-19-0005 by a vote of 4-2; and

WHEREAS, a public hearing was advertised, adjoining property owners notified, and a hearing conducted on Case No. SUP-19-0005 and

WHEREAS, the Board of Supervisors of James City County, Virginia, finds this use to be consistent with the 2045 Comprehensive Plan Land Use Map designation for the Property.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, after consideration of the factors in Section 24-9 of the James City County Code, does hereby approve the issuance of Case No. SUP-19-0005 as described herein with the following conditions:

1. *Master Plan*. This SUP shall be valid for approximately 328 acres of property located at 301 Old Stage Road, 9211 Old Stage Road, 275 Old Stage Road, and the portion of 9400 Barnes Road located south of Interstate 64, further identified, respectively, as James City County Real Estate Tax Map Parcel Nos. 0440100015, 0440100014, 0440100013, and the portion of 0430100017 lying south of Interstate 64 (collectively the "Property"). Development of the Property shall be generally in accordance with the master plan entitled "Master Plan for Rezoning of Enterprise Center at Hazelwood Farms" prepared by AES Consulting Engineers, dated 12/07/21 (the "Master Plan") and the design guidelines entitled "Design Guidelines for Hazelwood Farms Enterprise Center," prepared by Hopke & Associates, dated 12/08/21 (the "Design Guidelines"), with any deviations considered per Section 24-23(a)(2) of the Zoning Ordinance, as amended.

2. *Specially Permitted Uses*. This SUP shall be valid for the following specially permitted uses under the James City County Code, as amended ("County Code"):

   A. In accordance with Section 24-536.4 of the County Code:
      - A Fast-Food Restaurant (see Condition No. 24);
      - Manufacture and processing of textiles and textile products in structures more than 10,000 square feet (see Condition No. 22);
      - Heavy equipment sales and service with major repair under cover or screened with landscaping and fencing from adjacent property (see Condition No. 23);
      - Machinery sales and service with major repair under cover (see Condition No. 23); and
      - Water facilities (public), and sewer facilities (public), including, but not limited to, treatment plants, pumping stations, storage facilities and transmission mains, wells and associated equipment such as pumps to be owned and operated by political jurisdictions (see Condition No. 25).

   B. This SUP shall also be valid for one convenience store pursuant to Section 24-11(a)(1) (see Condition No. 21), any commercial building or group of buildings that exceeds 10,000 square feet of floor area pursuant to Section 24-11(a)(2) of the County Code, and any commercial building or group of buildings, not including office uses, which generates, or would be expected to generate, a total of 100 or more additional trips to and from the site during the peak hour of the operation pursuant to Section 24-11(a)(3) of the County Code, and buildings, additions, and expansions requiring a special use permit pursuant to Section 24-11(b) of the County Code; however, such commercial building, group of buildings, and additions or expansions thereto shall be limited to any permitted uses under Section 24-536.4 of the County Code, as amended, and those special uses permitted by this SUP. Furthermore, the uses authorized in this condition by 24-11(a)(2), 24-11(a)(3), and 24-11(b) shall not exceed a total of 75,000 square feet of commercial as referenced on the Master Plan. The use limitations within Condition No. 2 are not applicable to those uses not subject to 24-11(a)(2) and 24-11(a)(3). The uses within such square footage are further subject to the following restrictions:

      i. There shall be no more than one fast-food restaurant, one convenience store, and one bank with drive-through on the Property without amendment of these conditions and proffers.
      ii. The uses identified in subsection (i) shall be located within the Frontage Retail Area, as shown on the Master Plan.

iii. Drive-through windows for the uses identified in subsection (i) shall be screened from Route 30 and Old Stage Road (Route 746) with landscaping and/or fencing as determined by the Director of Planning.

iv. Any fast-food restaurant within the approved commercial square footage on the Property shall also be subject to Condition No. 24 of this SUP.

3. *Square Footage Limitations*. Development of the Property shall not exceed the following: (i) 3,220,000 square feet of combined warehouse, industrial, or office use; and (ii) 75,000 square feet of commercial use. In order to accurately track the progression of the development of the Property and requirements of this condition, each site plan or subdivision plan for any development within the Property shall include a then-current accounting of the square footage of development that has previously been approved by the County and that is proposed by the plan being submitted for review. Such accounting shall be in a form reasonably acceptable to the Director of Planning.

4. *Conservation and Irrigation*. The developer and designing engineer shall take into consideration the design of stormwater systems that can be used to collect stormwater for outdoor water use for the entire development. Prior to development plan approval, the General Manager of the James City Service Authority (JCSA) and the Director of the Stormwater and Resource Protection Division or their designees shall confirm in writing that such design has been considered. Only surface water collected from surface water impoundments, or water taken from an underground cistern, may be used for irrigation on the Property. In no circumstances shall the JCSA public water supply be used for irrigation. If the Owner demonstrates to the satisfaction and approval of the JCSA General Manager through drainage area studies and irrigation water budgets that the impoundments cannot provide sufficient water for all irrigation, the General Manager may, in writing, approve a shallow (less than 100 feet) irrigation well to supplement the water provided by the impoundments or cisterns.

5. *Street Trees*. Street trees shall be planted along the entirety of the spine road and placed in such a way as to establish a streetscape effect. The initial development plan for the spine road shall include a landscape plan showing the proposed street trees, subject to approval by the Director of Planning or designee. The street trees shall be guaranteed prior to approval of the spine road construction plan and each development plan adjacent to the spine road shall include the required plantings. The required street tree plantings for each development plan shall be installed prior to issuance of any Certificate of Occupancy, unless another timeline for planting has been approved by the Director of Planning.

6. *Route 30 and Route 746 Buffer*. Prior to final approval of any site plan in Land Area 3, the Director of Planning or designee shall review and approve a landscape plan for the entirety of Land Area 3. The landscape plan for Land Area 3 shall provide a 50-foot vegetated community character corridor buffer along the right-of-way for Route 30 and the right-of-way for Route 746 in accordance with Section 24-98 of the Zoning Ordinance. Any disturbance or grading into this area shall be the minimum necessary and shall require additional plantings consisting of no less than 125% of the required plantings per the Ordinance or as may be otherwise approved by the Director of Planning, such that at maturity the plantings match or exceed the mature height and density of trees and shrubs within the buffer. In areas of the buffer that are currently comprised of mature forest, as defined in Section 24-98 of the Zoning Ordinance, the buffer shall be left undisturbed in its natural state. In areas of the buffer that are not completely comprised of mature forest, as defined in Section 24-98 of the Zoning Ordinance, supplemental evergreen shrubs and trees shall be required. In areas of the buffer where little or no vegetation exists, as determined by

the Director of Planning or designee, the buffer shall be landscaped to the provisions of Section 24-96 of the Zoning Ordinance for General Landscape Areas. The landscaping detailed in this condition shall be shown as part of the initial site plan or shall be submitted as a separate plan concurrent with the initial site plan in Land Area 3. All landscaping on the landscape plan shall be guaranteed prior to site plan approval. The landscaping shown on the approved landscape plans for Land Area 3 shall be installed within 12 months of the final site plan approval, unless another timeline for planting has been approved by the Director of Planning.

7. *Interstate 64 Buffer*. Prior to final approval of any site plan in Land Area 1, Land Area 2, or Land Area 3, the Director of Planning or designee shall review and approve a landscape plan for the Land Area(s). The landscape plan for the Land Area shall provide a 50-foot vegetated buffer along the Interstate 64 right-of-way and be landscaped to the provisions of Section 24-98 of the Zoning Ordinance, except that the required tree and shrubs mixture be modified to require 45% of all proposed trees and shrubs within the 50-foot-wide vegetated buffer to be evergreen, with at least 45% of evergreen trees achieving a minimum height at maturity of 40 feet. Any disturbance or grading into this area shall be the minimum necessary and shall require additional plantings consisting of no less than 125% of the required plantings per the Ordinance or as may be otherwise approved by the Director of Planning, such that at maturity the plantings match or exceed the mature height and density of trees and shrubs within the buffer. In areas of the buffer that are currently comprised of mature forest, as defined in Section 24-98 of the Zoning Ordinance, the buffer shall be left undisturbed in its natural state. In areas of the buffer that are not completely comprised of mature forest, as defined in Section 24-98 of the Zoning Ordinance, supplemental evergreen shrubs and trees shall be required. In areas of the buffer where little or no vegetation exists, as determined by the Director of Planning or designee, the buffer shall be landscaped to the provisions of Section 24-96 of the Zoning Ordinance for General Landscape Areas. The landscaping detailed in this condition shall be shown as part of the initial site plan or shall be submitted as a separate plan concurrent with the initial site plan in Land Area 1, Land Area 2, or Land Area 3. All landscaping on the landscape plan shall be guaranteed prior to site plan approval. The landscaping shown on the approved landscape plans(s) for the relevant Land Area shall be installed within 12 months of the final site plan approval, unless another timeline for planting has been approved by the Director of Planning.

8. *Barnes Road and Leisure Road Buffer*. Prior to final approval of any site plan in Land Area 1, Land Area 4, or Land Area 6, the Director of Planning or designee shall review and approve a landscape plan for the Land Area(s). The landscape plan for the Land Area shall provide a 100-foot vegetated buffer along the Barnes Road right-of-way or Leisure Road right-of-way and be landscaped to the provisions of Section 24-98 of the Zoning Ordinance, except that the required tree and shrubs mixture be modified to require 45% of all proposed trees and shrubs within the 100-foot-wide vegetated buffer to be evergreen, with at least 45% of evergreen trees achieving a minimum height at maturity of 40 feet. Any disturbance or grading into this area shall be the minimum necessary and shall require additional plantings consisting of no less than 125% of the required plantings per the Ordinance or as may be otherwise approved by the Director of Planning, such that at maturity the plantings match or exceed the mature height and density of trees and shrubs within the buffer. In areas of the buffer that are currently comprised of mature forest, as defined in Section 24-98 of the Zoning Ordinance, the buffer shall be left undisturbed in its natural state. In areas of the buffer that are not completely comprised of mature forest, as defined in Section 24-98 of the Zoning Ordinance, supplemental evergreen shrubs and trees shall be required. In areas of the buffer where little or no vegetation exists, as determined by the Director of Planning or designee, the buffer shall be landscaped

to the provisions of Section 24-96 of the Zoning Ordinance for General Landscape Areas. The landscaping detailed in this condition shall be shown as part of the initial site plan or shall be submitted as a separate plan concurrent with the initial site plan in Land Area 1, Land Area 4, or Land Area 6. All landscaping on the landscape plan shall be guaranteed prior to site plan approval. The landscaping shown on the approved landscape plans(s) for the relevant Land Area shall be installed within 12 months of the final site plan approval, unless another timeline for planting has been approved by the Director of Planning.

9. *Bicycle and /Pedestrian Accommodations*.

   A. *Route 30 and Route 746.* A multiuse path shall be constructed along Route 30 and Route 746, as shown on the Master Plan. Prior to the issuance of a land disturbance permit for either Land Area 3 or Land Area 6, the multiuse path shall or guaranteed in a manner acceptable to the County Attorney. The multi-use path shall be constructed in its entirety prior to issuance of the first commercial Certificate of Occupancy.

   B. *Leisure Road.* As shown on the Master Plan, a multiuse path shall be constructed along the property line abutting Leisure Road. The multiuse path shall be guaranteed prior to issuance of a land disturbance permit within Land Area 6 and shall installed in its entirety prior to issuance of the first Certificate of Occupancy within the Land Area. A connection from this multiuse path to the interior of Upper County Park shall be provided.

10. *Vehicular Access Restriction*. Access to the Property from Route 30 and Route 746 shall be restricted to "South Entrance #1" and "South Entrance #2" as shown on the Master Plan. No vehicular access shall be provided to the Enterprise Center from Barnes Road, except for emergency access, as determined by the Director of Planning. Such emergency access shall be designed to cross the Barnes Road Buffer at or near a perpendicular angle to the property line, with clearing kept to the minimum necessary to accommodate the access.

11. *Lighting*. All new exterior light fixtures on the Property, including building lighting, shall have recessed fixtures with no lens, bulb, or globe extending below the casing and a lighting plan shall be submitted to and approved by the Director of Planning or designee prior to final site plan approval for each development plan that includes new lighting. Each site plan shall include a lighting plan meeting the requirements of this condition. All light poles must not exceed twenty (20) feet in height and the lighting plan must indicate no glare outside the boundary lines of the Property unless otherwise approved in writing by the Director of Planning or designee. "Glare" is defined as more than 0.1 foot-candle at the boundary of the Property or any direct view of the lighting source from adjoining properties.

12. *Sustainable Design Initiatives*.

   A. Construction of all commercial buildings within Land Area 3 and any office or institutional building in Land Areas 1, 2, 4, 5, or 6 on the Master Plan shall achieve the equivalent of those credits that would be required to achieve the "Certified" level in the Leadership in Energy and Environmental Design (LEED) 2009 Certification program or whatever is equivalent from the LEED for New Construction and Major Renovations (based on the most current guidelines)(the "Credits") for each building. This shall include completion of all prerequisite items, except that for the Energy and Atmosphere category prerequisite No. 1, the Owner may choose to pursue Energy Star designation

or such other energy systems verification process as is approved in advance by the Director of Planning. In addition, for up to a maximum of 10% of the points needed to reach the LEED "Certified" level, the Owner may request that initiatives equivalent to, but not included on the LEED checklist as credits, be pursued instead. Any request for equivalent initiatives shall be submitted in writing as part of the process specified in (B) below, together with supporting documentation for review and approval by the Director of Planning. Documentation of the building energy performance shall be provided by a mechanical engineer to the Director of Planning before the Certificate of Occupancy for the initial building to demonstrate an improvement in efficiency of the building's thermal envelope, mechanical systems, and electrical systems over code-required baseline performance.

B. Application for formal LEED certification by the United States Green Building Council (USGBC) is at the discretion of the Owner and is not required. If formal LEED certification is not pursued, compliance with this condition shall be monitored and verified to the County by a LEED Accredited Professional engaged by the Owner. The strategies to achieve the Credits will be incorporated into the construction documents either as part of the design, or as requirements for the contractor to substantiate during the course of construction. Compliance with the Credit requirements will be validated in a straightforward way through methods such as, but not limited to, review of contractor submittals, submission of design calculations, and letters certifying that requirements have been met. This validation will be overseen by a LEED-accredited professional and approved by the Director of Planning or designee with Credits related to the design of the project approved prior to issuance of the final site plan approval, and Credits related to the construction of the project approved prior to issuance any Certificate of Occupancy.

13. *Architectural Review*. Prior to each site plan approval for development within the Property, the Director of Planning shall review and approve the final architectural design of each proposed building to be consistent with the Design Guidelines. Each site plan shall include the final architectural design for all buildings shown and include general elevations of the buildings, as well as the view of the building for all sides visible from Old Stage Road (Route 30 and Route 746) or Leisure Road. A determination of substantial architectural consistency shall be required from the Director of Planning or designee. In the event the Director of Planning finds the design to be inconsistent with the Design Guidelines, the applicant may appeal the decision of the Director of Planning to the Development Review Committee which shall forward a recommendation to the Planning Commission.

14. *Site Design*.

A. For Land Areas 3 and 6, any building façade facing a road shall be designed in appearance as a front façade. The intent of this condition is to ensure that the side and rear of buildings, when visible from a roadway, achieve the standards put forward within the Design Guidelines for the front façade. No more than 25% of the required parking in these areas shall be located in between the building and Old Stage Road (Route 30 and Route 746) or Leisure Road.

B. Any drive-through element for a use on the Property shall be located to the side or at the rear of the building and shall not face Route 30.

C. All warehouse storage units operated as mini-storage shall be designed as a single footprint building. Warehouse storage units whereby individual storage units have an exterior access door are prohibited.

15. *Freestanding Signage*. All freestanding signage, including entrance signage located at the Property's two entrances as shown on the Master Plan, shall be externally illuminated monument-style signs, not to exceed 8 feet in height. The base of the signs shall be brick or shall use materials similar in type and color with the site architecture. The design of the signs shall be approved by the Director of Planning prior to final site plan approval for consistency with this condition.

16. *Screening of Site Features*. All dumpsters, ground mounted HVAC, mechanical units, and cart corrals which are adjacent to buildings shall be screened by an enclosure composed of masonry, closed cell PVC, prefinished metal or cementitious panels, in detail and colors to blend with adjacent building materials. Where present, such features shall be shown on the site plan for the adjacent building and shall be reviewed and approved by the Director of Planning for consistency with this condition.

17. *Internal Traffic Signage Plan*. An internal signage plan indicating the location of internal traffic signs and the orientation of vehicular flow within the Property shall be included along with the materials submitted for the initial site plan review process. The internal signage plan shall be reviewed and approved by the Director of Planning or designee, prior to final approval of the initial site plan for the Property. Thereafter, the internal signage plan may be amended with review and approval by the Director of Planning or designee.

18. *Shared Maintenance of Site Improvements*. All shared site improvements (including, but not limited to, utilities, stormwater facilities, landscaping, roads and parking lots, and lighting) shall be subject to appropriate shared maintenance commitments ensuring that the site improvements will be maintained continuously. Compliance with this condition as to the existence of such shared maintenance documentation shall be subject to review and approval of the County Attorney or designee prior to initial site plan approval.

19. *Internal Pedestrian Accommodations*. Internal pedestrian connections shall be provided on the Property, including, but not limited to, wherever sidewalks enter a parking area or cross any entrance to the Property or drive-through lane, and shall provide safe connections from any existing Williamsburg Area Transit Authority (WATA) bus stop. The connections shall be clearly delineated by use of a different color of pavement, brick pavers, or some other method determined to be acceptable by the Director of Planning.

20. *Master Stormwater Management Plan*. Development of the Property shall be governed by one or more Master Stormwater Management Plans (MSWMP). Each MSWMP shall address, at minimum, a Land Bay Area within the Property and shall be approved prior to the first site plan submittal for any such area. Furthermore, each MSWMP shall adhere to the following:

    A. Each land bay area will include a stormwater management facility designed to the standards and specifications current at the time of area development design. Furthermore, each land bay area as shown on the master plan will include no fewer than two treatment trains as part of the area master stormwater approach. Each of these trains will be required to contain at least three low impact development features, such as those noted on the submitted

plan set (*i.e.*, vegetated filter strip, permeable pavement, bioretention basin, dry swale, manufactured treatment device).

B. The MSWMP shall comply with the standards of any adopted watershed management plan in place at time of submittal.

C. If required by the watershed management plan adopted at the time of submittal, Special Stormwater Criteria (SSC) measures may not also be used to achieve required water quality requirements. At the time of an MSWMP submittal, specific SSC measures may be deemed unsuitable for the type of development as determined by the Director of Stormwater or designee.

21. *Convenience Stores with Fuel Sales*.

A. *Outside Display, Sale, or Storage.* Unless otherwise stated in this condition, no outside display, sale, or storage of merchandise shall be permitted at the Property. As used for this condition, the term "merchandise" includes, but is not limited to ice, soda, candy, and/or snack machines. For the convenience store, only two outside vending machines and one outside ice chest shall be permitted and, if used, shall be situated against the exterior wall not facing Route 30 and screened with building materials similar in type and color with the site architecture to minimize visual impacts from adjacent road rights-of-way. Final screening design shall be approved by the Director of Planning as part of the initial site plan submittal.

B. *Use Design.* The convenience store shall not be designed as a truck stop, as defined within the Zoning Ordinance.

C. *Intercom and Speaker Noise.* All intercom and other speaker systems on the Property shall operate in such a manner that they shall not be audible from adjacent developments within the same Land Area.

D. *Fueling Islands*. There shall be no more than six (6) fueling islands associated with the convenience store.

E. *Landscaping*. Prior to final site plan approval, a landscape plan shall be submitted showing adequate screening of the fuel islands from internal uses and/or external properties through the use of landscaped islands and/or medians. The islands and/or medians shall be a minimum of 5 feet wide in order to accommodate landscaping adjacent to the boundaries of the site. Evergreen plantings with a minimum of 3 feet tall shall be planted in these medians to adequately screen the fuel islands. The Director of Planning shall determine whether the screening is adequate prior to final site plan approval. Landscaping for the islands/medians shall be installed and/or bonded prior to the issuance of a temporary Certificate of Occupancy.

F. *Architectural Review*. The architecture of any canopy, including any columns, shall match the primary colors, design, and exterior building materials of the convenience store. The canopies shall have a mansard roof design, as determined by the Director of Planning. Any canopy shall have a maximum height of 15 feet measured from the finished grade to the underside of the canopy. The Canopy shall not include signage that involves backlighting or electronic lettering. There shall be no more than two signs on the canopy.

G. *Spill Prevention, Control and Countermeasures (SPCC) Plan*. Prior to the issuance of a Land Disturbing Permit, an SPCC Plan shall be reviewed and approved by the Director of Stormwater and Resource Protection. The SPCC Plan shall address chemical handling, including, but not limited to, oil, diesel, and gasoline.

22. *Manufacturing and Processing of Textiles*.

A. *Outside Storage of Materials*. No outside display, sale, or storage of materials shall be permitted at the Property. For the purpose of this condition, "materials" shall include, but not be limited to, chemicals, dyes, fabrics, etc. Off-chassis shipping containers, storage barrels, and other containers are prohibited.

B. *Location*. All facilities for the manufacturing and processing of textiles shall be located in either Land Areas 1, 2, or 5. There shall be a minimum setback of 1,000 feet from the Barnes Road right-of-way for any structure for this use proposed in Land Area 1. An additional landscape plan showing enhanced buffering and landscaping to accomplish screening consistent with Section 24-100 of the Zoning Ordinance shall be submitted for review and approval by the County Director of Planning prior to site plan approval. The purpose of the enhanced buffering and landscaping plan is to demonstrate that the use is fully screened from roadways external to the Property and any residential uses.

C. *Spill Prevention, Control and Countermeasures (SPCC) Plan*. Prior to the issuance of a Land Disturbing Permit, an SPCC Plan shall be reviewed and approved by the Director of Stormwater and Resource Protection. The SPCC Plan shall address chemical handling, including, but not limited to, oil, diesel, dyes, and gasoline.

D. *Limitation on Use*. Any such manufacturing and processing of textiles use shall be conducted within a fully enclosed building, with no outside evidence of dust, noise, odor, or other objectionable effect.

23. *Heavy Equipment Sales and Service and Machinery Sales and Services*.

A. *Location.* All facilities for heavy equipment sales and service or machinery sales and service shall be located in either Land Areas 1, 2, or 5. There shall be a minimum setback of 1,000 feet from the Barnes Road right-of-way for any structure for this use proposed in Land Area 1. An additional landscape plan showing enhanced buffering and landscaping to accomplish screening consistent with Section 24-100 of the Zoning Ordinance shall be submitted for review and approval by the Director of Planning prior to site plan approval. The purpose of the enhanced buffering and landscaping plan is to demonstrate that the use is fully screened from roadways external to the Property and any residential uses.

B. *Spill Prevention, Control and Countermeasures (SPCC) Plan*. Prior to the issuance of a Land Disturbing Permit, an SPCC Plan shall be reviewed and approved by the Director of Stormwater and Resource Protection. The SPCC Plan shall address chemical handling, including, but not limited to, oil, diesel, and gasoline.

C. *Outside Storage of Materials*. Except as described in subsection D below, no outside storage of materials or merchandise shall be permitted at the Property without being fully screened via landscaping or fencing, which is to be shown on the site plan and reviewed and approved by the Director of Planning. Materials and merchandise include, but not be limited to, off-chassis shipping containers and equipment utilized for repair and servicing.

D. *Outside Display, Sale*. The outside display or sale (wholesale, retail, or otherwise) of merchandise shall be permitted only on the locations on the Property detailed on the site plan accompanying this proposal. The site plan shall show all adequate features needed, as determined by the Director of Planning, to mitigate visual impacts of this display or sale on adjacent properties. These features include, but are not limited to, landscaping, berming, buffering, vehicular display pad spacing requirements, etc.

E. *Fencing*. Except as described in subsection D above, on-site fencing shall be of sufficient height and design to screen all vehicles and material related to the use on the Property from view of the spine road right-of-way and all adjacent rights-of-way. Fencing shall be shown on the site plan and approved by the Director of Planning prior to site plan approval.

F. *Maintenance to be Enclosed*. All maintenance is to occur only within a fully enclosed building. All noise, dust, and odor effects from any maintenance work shall be limited to a fully enclosed building.

24. *Fast-Food Restaurant*.

A. *Signage.* All building face signage shall be externally illuminated or use back-lit or channeled lettered lighting as defined in Section 24-67 of the Zoning Ordinance. For any back-lit or channeled lettered signs, the sign shall meet the criteria listed in Section 24-72 of the Zoning Ordinance, or successor section.

B. *Screening.* The food order board(s) and drive-through pick up window(s) shall be screened from Route 30 with landscaping and/or fencing, as determined by the Director of Planning or designee.

C. *Outside Display, Sale, or Storage.* No outside display, sale, or storage of merchandise shall be permitted on the Property.

D. *Intercom and Speaker Noise*. All intercom and other speaker systems on the Property shall operate in such a manner that they shall not be audible from adjacent developments.

E. *Architectural Review - Fast Food Canopy.* The architecture of any canopy accessory to a fast-food restaurant shall match the design and exterior building materials of the fast-food restaurant, in accordance with the "Design Guidelines for Hazelwood Farms Enterprise Center" and dated December 8, 2021. Final design of the canopy shall be reviewed and approved by the Director of Planning prior to site plan approval.

25. *Water and Sewer Facilities*.

A. *Use*. This SUP shall be valid for the installation of a force main and water main, each a diameter of 4 inches or greater, within the VDOT right-of-way for Barhamsville Road (Route 30) from the intersection of La Grange Parkway

and Barhamsville Road (Route 30) north along Barhamsville Road to the intersection of Old Stage Road (Route 746), then extending south along Old Stage Road (Route 746) to then extend along the proposed public road to serve the Property. A water main loop may be installed from the proposed public road on the Property under Interstate 64 to serve parcels to the north of the interstate.

B. *Construction Hours*. The hours of construction of the water and sewer facilities shall be limited to daylight hours, Monday through Friday. Limited night and weekend work may be approved by the Director of Planning if requested in advance and it is determined that such work will not negatively affect surrounding properties.

C. *Replanting.* Prior to issuance of a Land Disturbing Permit, a plan addressing the replanting of disturbed vegetation within the right-of-way shall be submitted and approved by the Director of Planning or designee. The intent of the plan is to restore the area to pre-land disturbing conditions.

D. *Lighting*. Unless required by safety codes, there shall be no new permanent lighting associated with the water and sewer facilities.

26. *Commencement for Construction*. Construction of one of these uses authorized within the SUP, excluding the public water and sewer facilities, shall commence within 60 months from the date of approval of this SUP or the SUP shall be void. Construction shall be defined as the first placement of permanent construction of a structure on the Property, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation. Construction does not include land preparation such as clearing, grading, or filling.

27. *Severance Clause*. This SUP is not severable. Invalidation of any word, phrase, clause, sentence, or paragraph shall invalidate the remainder.

_____
John J. McGlennon
Chairman, Board of Supervisors

ATTEST:

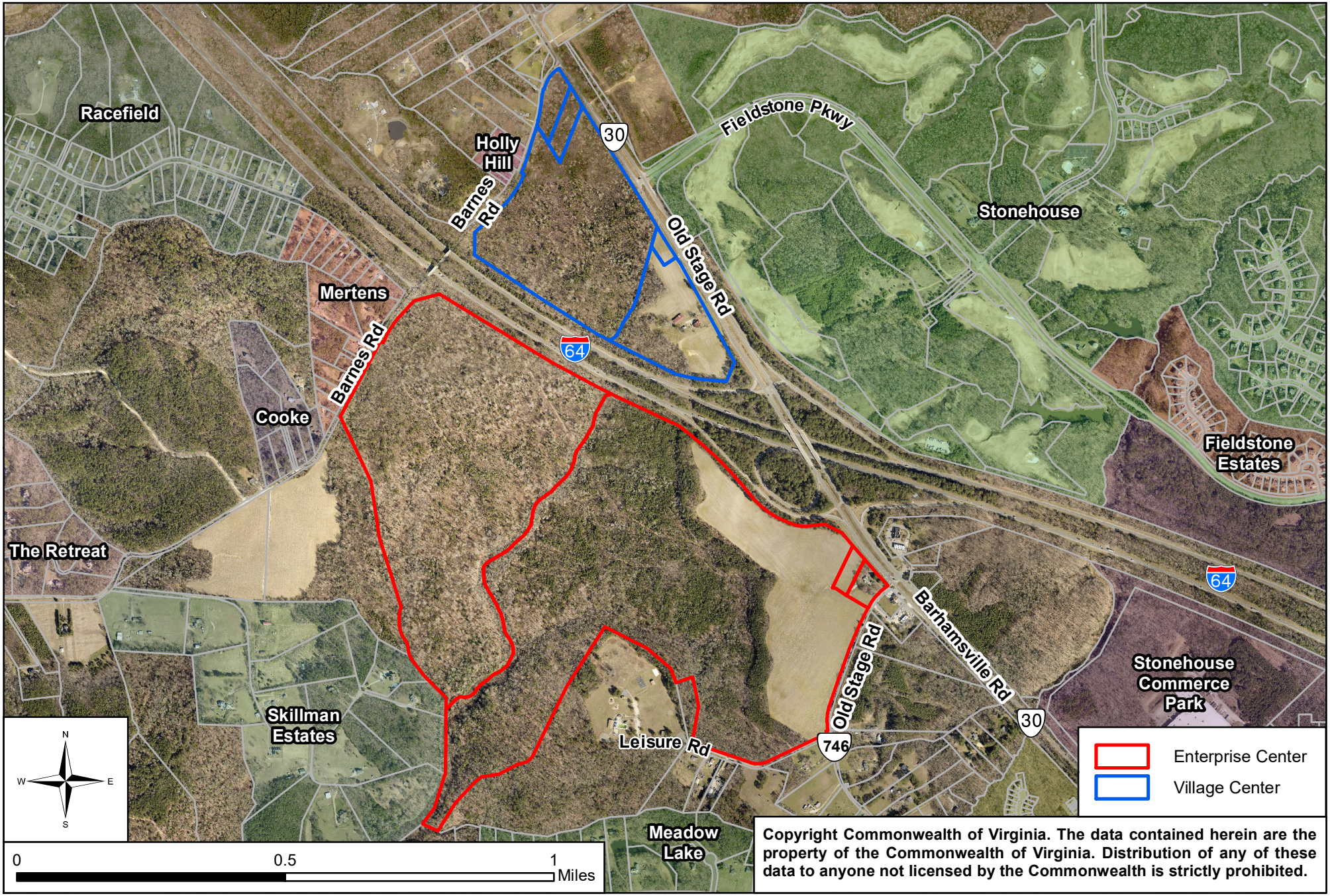
_____
Teresa J. Saeed
Deputy Clerk to the Board

	VOTES			
	AYE	NAY	ABSTAIN	ABSENT
ICENHOUR	____	____	____	____
HIPPLE	____	____	____	____
LARSON	____	____	____	____
SADLER	____	____	____	____
MCGLENNON	____	____	____	____

Adopted by the Board of Supervisors of James City County, Virginia, this 8th day of February, 2022.

SUP19-5HazelwdFmsEC-res

JCC Z-19-0006, SUP-19-0005 & SUP-19-0006: Hazelwood Enterprise Center & Village Center



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MASTER PLAN FOR

REZONING OF ENTERPRISE CENTER

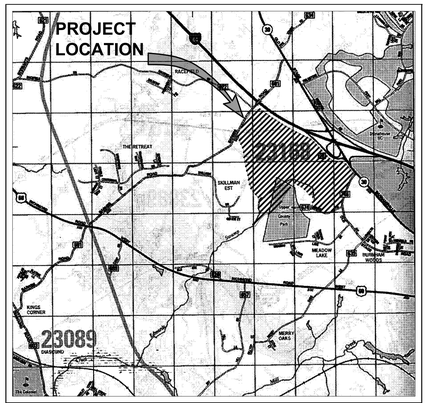
AT

HAZELWOOD FARMS

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

GENERAL NOTES

1. TOPOGRAPHIC INFORMATION IS BASED ON 2-FOOT CONTOUR INTERVALS PROVIDED BY AN AERIAL SURVEY FLOWN IN 2015.
2. SHEET 2, ENVIRONMENTAL INVENTORY, INDICATES 25% SLOPES, SOIL INVENTORY, WETLANDS, THE APPROXIMATE LOCATION OF RESOURCE PROTECTION AREAS (RPA) AND ASSOCIATED BUFFERS, AND PERENNIAL STREAM DETERMINATIONS. FOR FURTHER INFORMATION ON THE ENVIRONMENTAL INVENTORY, REFER TO THE COMMUNITY IMPACT STATEMENT.
3. THIS PROJECT IS LOCATED WITHIN THE WARE CREEK AND DIASCUND CREEK RESERVOIR WATERSHEDS.
4. CURB AND GUTTER STREETS ARE PROPOSED.
5 ALL PUBLIC STREETS WITHIN THE DEVELOPMENT WILL BE DESIGNED PER APPLICABLE VDOT STANDARDS.
6. HYDROLOGIC UNIT CODES
   Y062 WARE CREEK
   JL27 DIASCUND CREEK RESERVOIR
7. MAXIMUM BUILDING HEIGHT = 60'



VICINITY MAP
(Approximate Scale: 1"=2000')
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COUNTY PROJECT NO.: CZ-19-006
SUP-19-006
ORIGINAL SUBMITTAL DATE: 2/7/2019
APPROVAL DATE:

INDEX OF SHEETS

SHEET NO.	SHEET DESCRIPTION
MP-1	COVER SHEET
MP-2	EXISTING CONDITIONS PLAN
MP-3	CONCEPTUAL LAND USE AND SHARED USE PATH PLAN
MP-4	CONCEPTUAL STORMWATER MASTER PLAN
MP-5	CONCEPTUAL UTILITY PLAN
MP-6	CONCEPTUAL RT. 30 ROAD IMPROVEMENTS PLAN

SITE DATA:

SITE ADDRESS:	9400 BARNES ROAD, 275 & 301 OLD STAGE ROAD WILLIAMSBURG, VIRGINIA 23185	
CURRENT ZONING:	A-1, GENERAL AGRICULTURAL B-1, GENERAL BUSINESS	
PROPOSED ZONING:	EO, ECONOMIC OPPORTUNITY	
PARCELS:	T.M. 0430100017 (PART 2)	130.60± AC (A-1)
	T.M. 0440100013	193.75± AC (B-1)
	T.M. 0440100014	1.53± AC (B-1)
	T.M. 0440100015	2.30± AC (B-1)
TOTAL ACREAGE:		328.18± AC

FLOOD HAZARD MAP: THIS PROPERTY IS IN FLOOD ZONE "X" AS SHOWN ON MAP NUMBER 51095C0037D, PANEL 0037D, FOR COMMUNITY NUMBER 510201, DATED 12/16/2015 OF THE FLOOD INSURANCE RATE MAPS FOR JAMES CITY COUNTY, VIRGINIA. ZONE "X" IS DEFINED AS AREAS OUTSIDE THE 500 YEAR FLOOD PLAIN.

Rev.	Date	Description	Revised By
3	12/07/21	REVISED PER OWNER COMMENTS	JAG
3	3/12/21	REVISED PER JCC COMMENTS	JAG
2	1/7/2020	UPDATED PER JCC COMMENTS	JAG
1	8/20/19	UPDATED PER JCC COMMENTS	JAG

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Phone: (757) 253-0040
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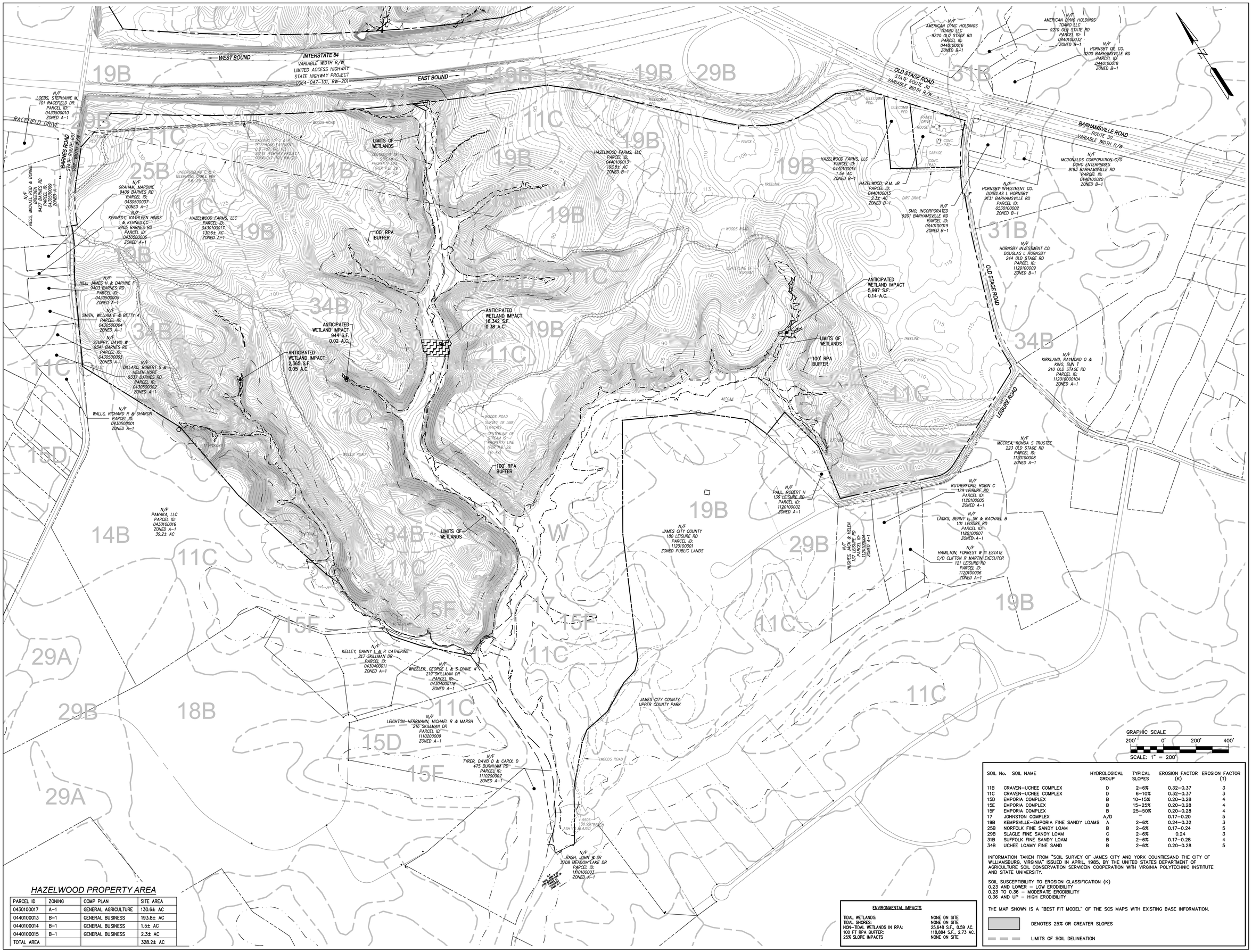
www.aesva.com
Hampton Roads | Central Virginia | Middle Peninsula

MASTER PLAN FOR
REZONING OF ENTERPRISE CENTER
AT
HAZELWOOD FARMS
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	W10325-01
Scale: NONE	Date: 2/7/19
Sheet Title: COVER SHEET	

Sheet Number
MP-1

S:\JOBS\W10325\01\Hazelwood Farms LLC\Land Planning\Master Planning\Enterprise Rezoning\W10325C1 MP1 cover.dwg, 12/7/2021 10:11:16 AM, jaggleschew



HAZELWOOD PROPERTY AREA

PARCEL ID	ZONING	COMP PLAN	SITE AREA
0430100017	A-1	GENERAL AGRICULTURE	130.6± AC
0440100013	B-1	GENERAL BUSINESS	193.8± AC
0440100014	B-1	GENERAL BUSINESS	1.5± AC
0440100015	B-1	GENERAL BUSINESS	2.3± AC
TOTAL AREA			328.2± AC

ENVIRONMENTAL IMPACTS

TIDAL WETLANDS:	NONE ON SITE
TIDAL SHORES:	NONE ON SITE
NON-TIDAL WETLANDS IN RPA:	25,648 S.F., 0.59 AC.
100 FT RPA BUFFER:	118,884 S.F., 2.73 AC.
25% SLOPE IMPACTS	NONE ON SITE

SOIL No.	SOIL NAME	HYDROLOGICAL GROUP	TYPICAL SLOPES	EROSION FACTOR (K)	EROSION FACTOR (T)
11B	CRAVEN-UCHEE COMPLEX	D	2-6%	0.32-0.37	3
11C	CRAVEN-UCHEE COMPLEX	D	6-10%	0.32-0.37	3
15D	EMPORIA COMPLEX	B	10-15%	0.20-0.28	4
15E	EMPORIA COMPLEX	B	15-25%	0.20-0.28	4
15F	EMPORIA COMPLEX	B	25-50%	0.20-0.28	4
17	JOHNSTON COMPLEX	A/D	-	0.17-0.20	5
19B	KEMPSVILLE-EMPORIA FINE SANDY LOAMS	A	2-6%	0.24-0.32	3
25B	NORFOLK FINE SANDY LOAM	B	2-6%	0.17-0.24	5
29B	SLAGLE FINE SANDY LOAM	C	2-6%	0.24	3
31B	SUFFOLK FINE SANDY LOAM	B	2-6%	0.17-0.28	4
34B	UCHEE LOAMY FINE SAND	B	2-6%	0.20-0.28	5

INFORMATION TAKEN FROM "SOIL SURVEY OF JAMES CITY AND YORK COUNTIESAND THE CITY OF WILLIAMSBURG, VIRGINIA" ISSUED IN APRIL 1985, BY THE UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICEIN COOPERATION WITH VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY.

SOIL SUSCEPTIBILITY TO EROSION CLASSIFICATION (K)
0.23 AND LOWER - LOW ERODIBILITY
0.23 TO 0.36 - MODERATE ERODIBILITY
0.36 AND UP - HIGH ERODIBILITY

THE MAP SHOWN IS A "BEST FIT MODEL" OF THE SCS MAPS WITH EXISTING BASE INFORMATION.

DENOTES 25% OR GREATER SLOPES

LIMITS OF SOIL DELINEATION

Rev.	Date	Description	Drawn By
3	12/07/21	REVISED PER OWNER COMMENTS	JAG
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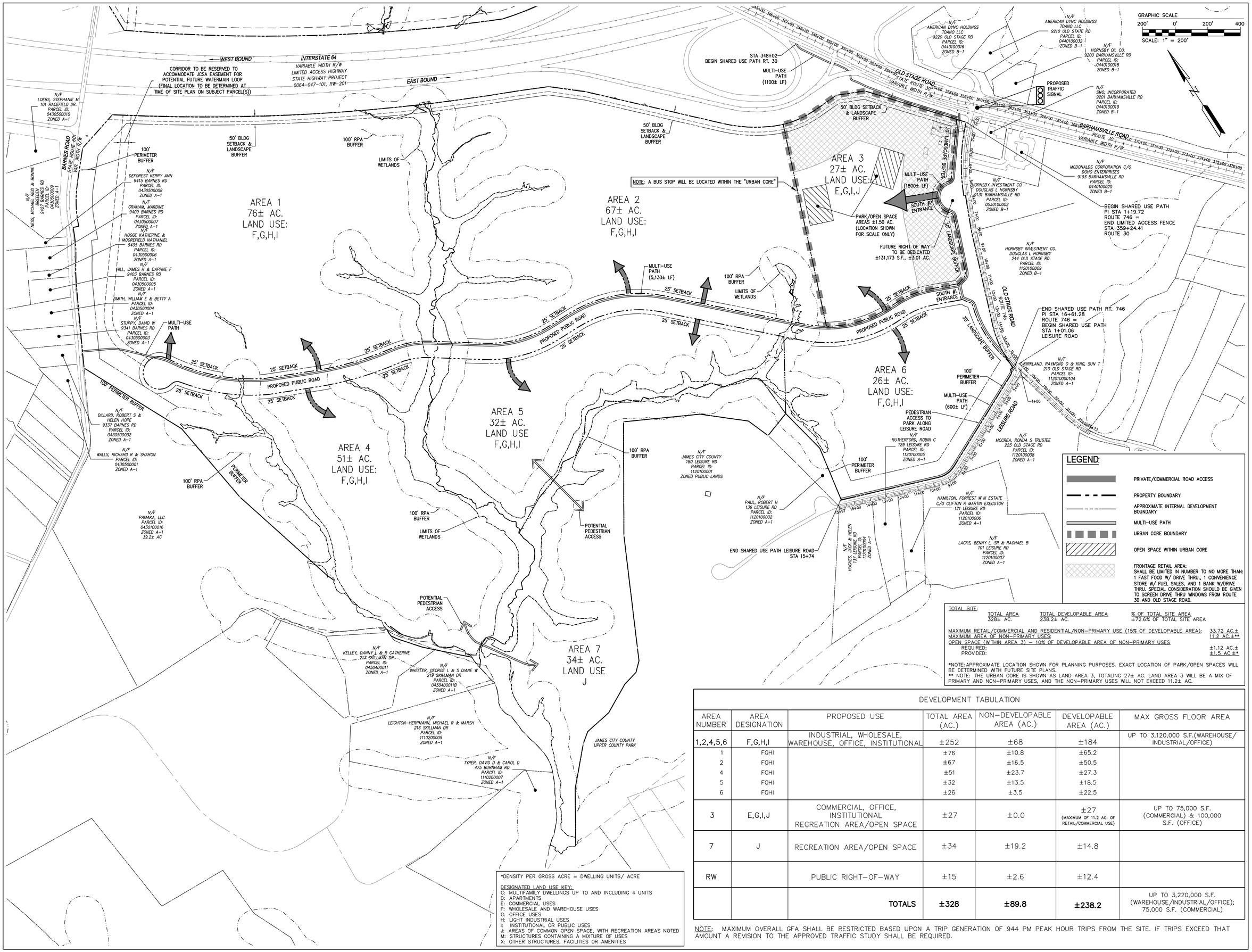
MASTER PLAN FOR
REZONING OF ENTERPRISE CENTER
AT
HAZELWOOD FARMS
STONEHOUSE DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts:	JAG
Project Number:	W10325-01
Scale: 1"=200'	Date: 2/7/19

Sheet Title:
EXISTING CONDITIONS PLAN

Sheet Number
MP-2



TOTAL SITE:

TOTAL AREA	TOTAL DEVELOPABLE AREA	% OF TOTAL SITE AREA
328± AC.	238.2± AC.	±72.6% OF TOTAL SITE AREA

MAXIMUM RETAIL/COMMERCIAL AND RESIDENTIAL/NON-PRIMARY USE (15% OF DEVELOPABLE AREA):	33.72 AC.±
MAXIMUM AREA OF NON-PRIMARY USES:	11.2 AC.±**
OPEN SPACE (WITHIN AREA 3) – 10% OF DEVELOPABLE AREA OF NON-PRIMARY USES	
REQUIRED:	±1.12 AC.±
PROVIDED:	±1.5 AC.±*

*NOTE: APPROXIMATE LOCATION SHOWN FOR PLANNING PURPOSES. EXACT LOCATION OF PARK/OPEN SPACES WILL BE DETERMINED WITH FUTURE SITE PLANS.
** NOTE: THE URBAN CORE IS SHOWN AS LAND AREA 3, TOTALING 27± AC. LAND AREA 3 WILL BE A MIX OF PRIMARY AND NON-PRIMARY USES, AND THE NON-PRIMARY USES WILL NOT EXCEED 11.2± AC.

*DENSITY PER GROSS ACRE = DWELLING UNITS/ ACRE

DESIGNATED LAND USE KEY:
C: MULTIFAMILY DWELLINGS UP TO AND INCLUDING 4 UNITS
D: APARTMENTS
E: COMMERCIAL USES
F: WHOLESALE AND WAREHOUSE USES
G: OFFICE USES
H: LIGHT INDUSTRIAL USES
I: INSTITUTIONAL OR PUBLIC USES
J: AREAS OF COMMON OPEN SPACE, WITH RECREATION AREAS NOTED
M: STRUCTURES CONTAINING A MIXTURE OF USES
X: OTHER STRUCTURES, FACILITIES OR AMENITIES

DEVELOPMENT TABULATION

AREA NUMBER	AREA DESIGNATION	PROPOSED USE	TOTAL AREA (AC.)	NON-DEVELOPABLE AREA (AC.)	DEVELOPABLE AREA (AC.)	MAX GROSS FLOOR AREA
1,2,4,5,6	F,G,H,I	INDUSTRIAL, WHOLESALE, WAREHOUSE, OFFICE, INSTITUTIONAL	±252	±68	±184	UP TO 3,120,000 S.F.(WAREHOUSE/ INDUSTRIAL/OFFICE)
1	FGHI		±76	±10.8	±65.2	
2	FGHI		±67	±16.5	±50.5	
4	FGHI		±51	±23.7	±27.3	
5	FGHI		±32	±13.5	±18.5	
6	FGHI		±26	±3.5	±22.5	
3	E,G,I,J	COMMERCIAL, OFFICE, INSTITUTIONAL RECREATION AREA/OPEN SPACE	±27	±0.0	±27 (MAXIMUM OF 11.2 AC. OF RETAIL/COMMERCIAL USE)	UP TO 75,000 S.F. (COMMERCIAL) & 100,000 S.F. (OFFICE)
7	J	RECREATION AREA/OPEN SPACE	±34	±19.2	±14.8	
RW		PUBLIC RIGHT-OF-WAY	±15	±2.6	±12.4	
		TOTALS	**±328**	**±89.8**	**±238.2**	UP TO 3,220,000 S.F. (WAREHOUSE/INDUSTRIAL/OFFICE); 75,000 S.F. (COMMERCIAL)

NOTE: MAXIMUM OVERALL GFA SHALL BE RESTRICTED BASED UPON A TRIP GENERATION OF 944 PM PEAK HOUR TRIPS FROM THE SITE. IF TRIPS EXCEED THAT AMOUNT A REVISION TO THE APPROVED TRAFFIC STUDY SHALL BE REQUIRED.

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3	12/07/21	REVISED PER OWNER COMMENTS	JAG
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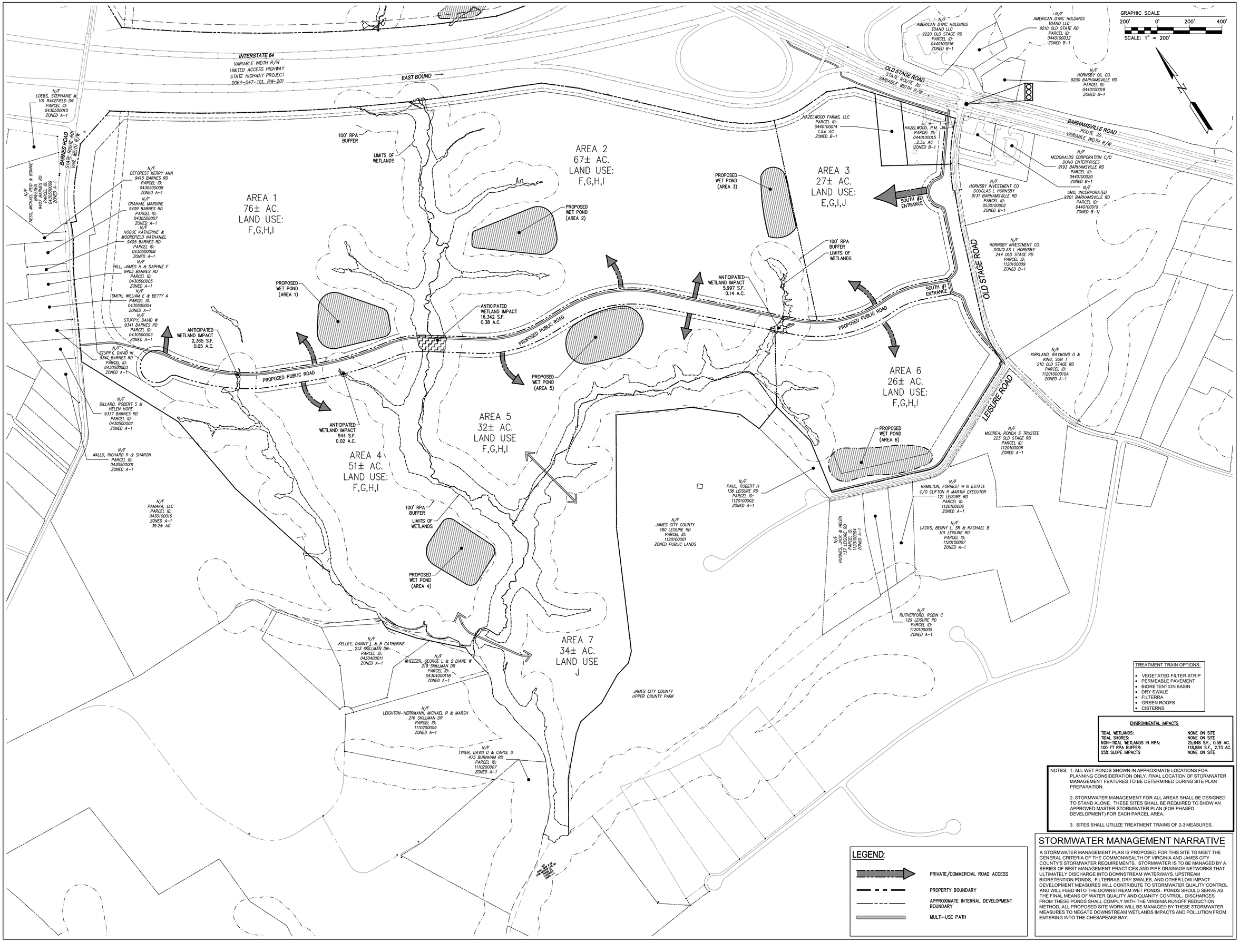
MASTER PLAN FOR
REZONING OF ENTERPRISE CENTER
AT
HAZELWOOD FARMS
JAMES CITY COUNTY | VIRGINIA
STONEHOUSE DISTRICT

Project Contacts:	JAG
Project Number:	W10325-01
Scale: 1"=200'	Date: 2/7/19

Sheet Title:
CONCEPTUAL LAND USE AND SHARED USE PATH PLAN

Sheet Number
MP-3



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MASTER PLAN FOR
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STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

TREATMENT TRAIN OPTIONS:

- VEGETATED FILTER STRIP
- PERMEABLE PAVEMENT
- BIORETENTION BASIN
- DRY SWALE
- FILTERRA
- GREEN ROOFS
- CISTERNS

ENVIRONMENTAL IMPACTS

TIDAL WETLANDS:	NONE ON SITE
TIDAL SHORES:	NONE ON SITE
NON-TIDAL WETLANDS IN RPA:	25,648 S.F., 0.59 AC.
100 FT RPA BUFFER:	118,884 S.F., 2.73 AC.
25% SLOPE IMPACTS	NONE ON SITE

NOTES:
1. ALL WET PONDS SHOWN IN APPROXIMATE LOCATIONS FOR PLANNING CONSIDERATION ONLY. FINAL LOCATION OF STORMWATER MANAGEMENT FEATURES TO BE DETERMINED DURING SITE PLAN PREPARATION.
2. STORMWATER MANAGEMENT FOR ALL AREAS SHALL BE DESIGNED TO STAND ALONE. THESE SITES SHALL BE REQUIRED TO SHOW AN APPROVED MASTER STORMWATER PLAN (FOR PHASED DEVELOPMENT) FOR EACH PARCEL AREA.
3. SITES SHALL UTILIZE TREATMENT TRAINS OF 2-3 MEASURES.

STORMWATER MANAGEMENT NARRATIVE

A STORMWATER MANAGEMENT PLAN IS PROPOSED FOR THIS SITE TO MEET THE GENERAL CRITERIA OF THE COMMONWEALTH OF VIRGINIA AND JAMES CITY COUNTY'S STORMWATER REQUIREMENTS. STORMWATER IS TO BE MANAGED BY A SERIES OF BEST MANAGEMENT PRACTICES AND PIPE DRAINAGE NETWORKS THAT ULTIMATELY DISCHARGE INTO DOWNSTREAM WATERWAYS. UPSTREAM BIORETENTION PONDS, FILTERRAS, DRY SWALES, AND OTHER LOW IMPACT DEVELOPMENT MEASURES WILL CONTRIBUTE TO STORMWATER QUALITY CONTROL AND WILL FEED INTO THE DOWNSTREAM WET PONDS. PONDS SHOULD SERVE AS THE FINAL MEANS OF WATER QUALITY AND QUANITY CONTROL. DISCHARGES FROM THESE PONDS SHALL COMPLY WITH THE VIRGINIA RUNOFF REDUCTION METHOD. ALL PROPOSED SITE WORK WILL BE MANAGED BY THESE STORMWATER MEASURES TO NEGATE DOWNSTREAM WETLANDS IMPACTS AND POLLUTION FROM ENTERING INTO THE CHESAPEAKE BAY.

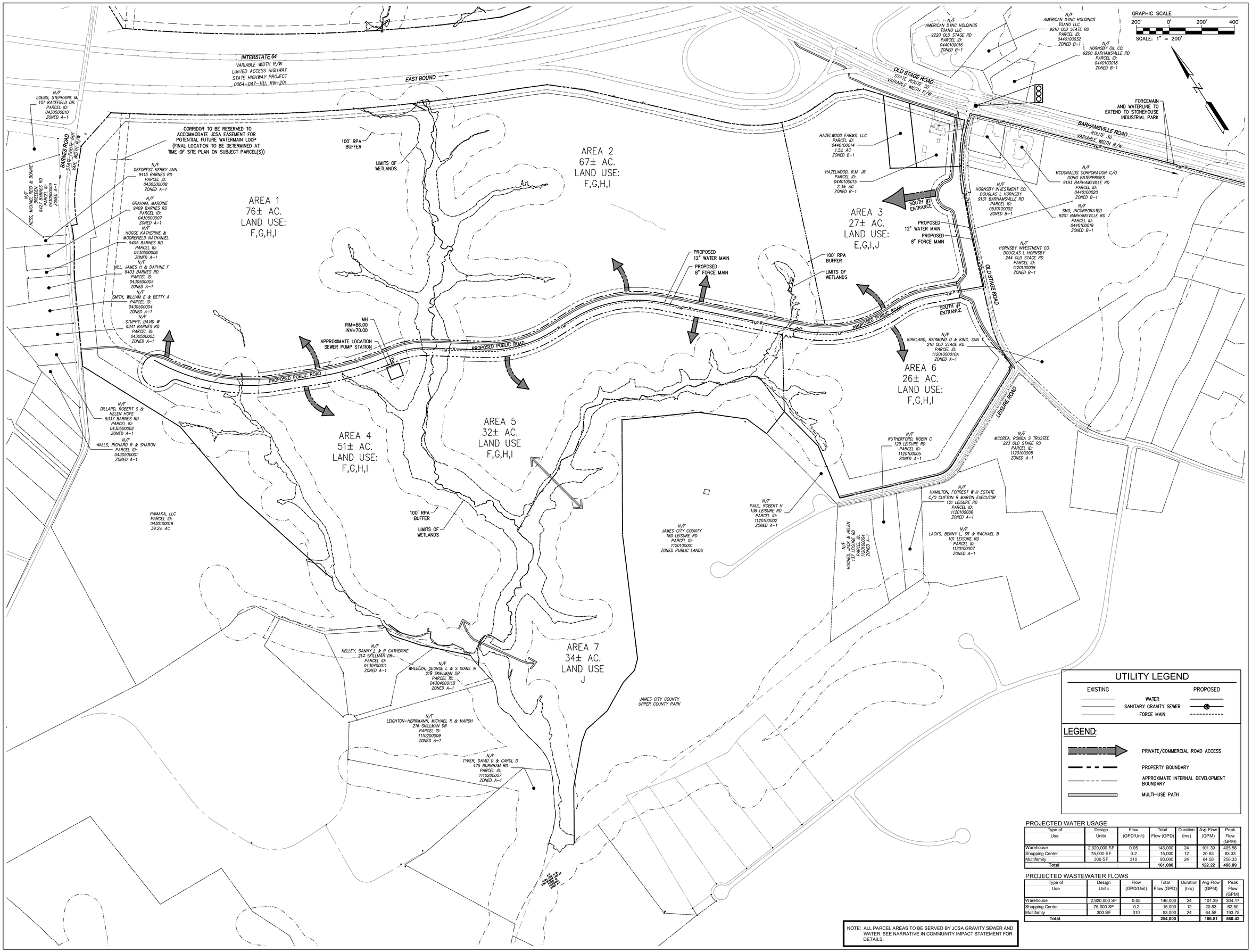
LEGEND:

- PRIVATE/COMMERCIAL ROAD ACCESS
- PROPERTY BOUNDARY
- APPROXIMATE INTERNAL DEVELOPMENT BOUNDARY
- MULTI-USE PATH

Project Contacts:	JAG
Project Number:	W10325-01
Scale: 1"=200'	Date: 2/7/19

Sheet Title:
CONCEPTUAL STORMWATER MASTER PLAN

Sheet Number
MP-4



NOTE: ALL PARCEL AREAS TO BE SERVED BY JCSA GRAVITY SEWER AND WATER. SEE NARRATIVE IN COMMUNITY IMPACT STATEMENT FOR DETAILS.

PROJECTED WATER USAGE

Type of Use	Design Units	Flow (GPD/Unit)	Total Flow (GPD)	Duration (hrs)	Avg Flow (GPM)	Peak Flow (GPM)
Warehouse	2,920,000 SF	0.05	146,000	24	101.39	405.56
Shopping Center	75,000 SF	0.2	15,000	12	20.83	83.33
Multifamily	300 SF	310	93,000	24	64.58	258.33
Total			**161,000**		**122.22**	**488.89**

PROJECTED WASTEWATER FLOWS

Type of Use	Design Units	Flow (GPD/Unit)	Total Flow (GPD)	Duration (hrs)	Avg Flow (GPM)	Peak Flow (GPM)
Warehouse	2,920,000 SF	0.05	146,000	24	101.39	304.17
Shopping Center	75,000 SF	0.2	15,000	12	20.83	62.50
Multifamily	300 SF	310	93,000	24	64.58	193.75
Total			**254,000**		**186.81**	**560.42**

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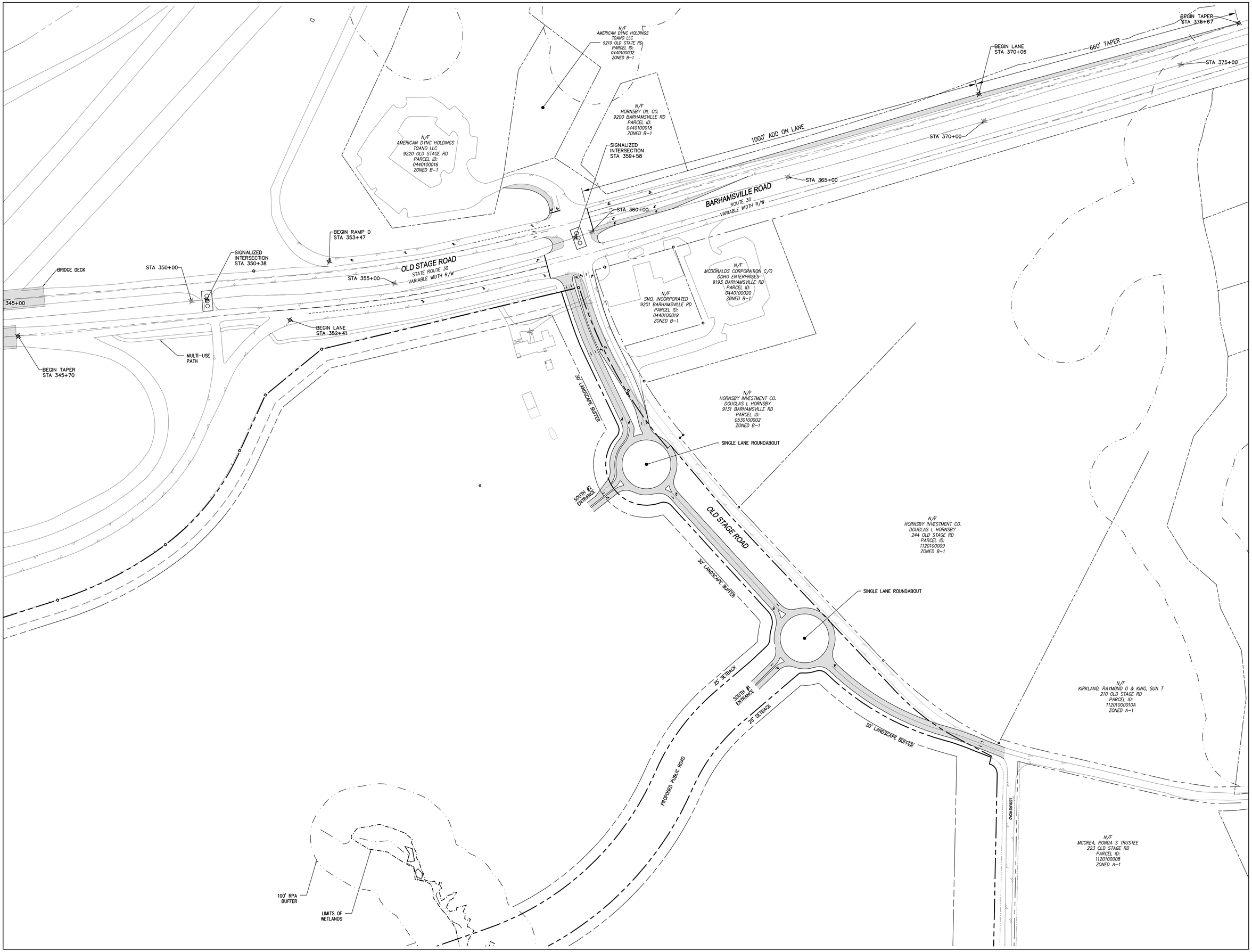
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	W10325-01
Scale: 1"=200'	Date: 2/7/19

Sheet Title:
CONCEPTUAL UTILITY PLAN

Sheet Number
MP-5



Rev.	Date	Description	Drawn By
3	12/07/21	REVISED PER OWNER COMMENTS	JAG
3	3/1/2021	REVISED PER JCC COMMENTS	JAG
2	1/2/2020	UPDATED PER JCC COMMENTS	JAG
1	8/28/19	UPDATED PER JCC COMMENTS	JAG

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MASTER PLAN FOR
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AT
HAZELWOOD FARMS

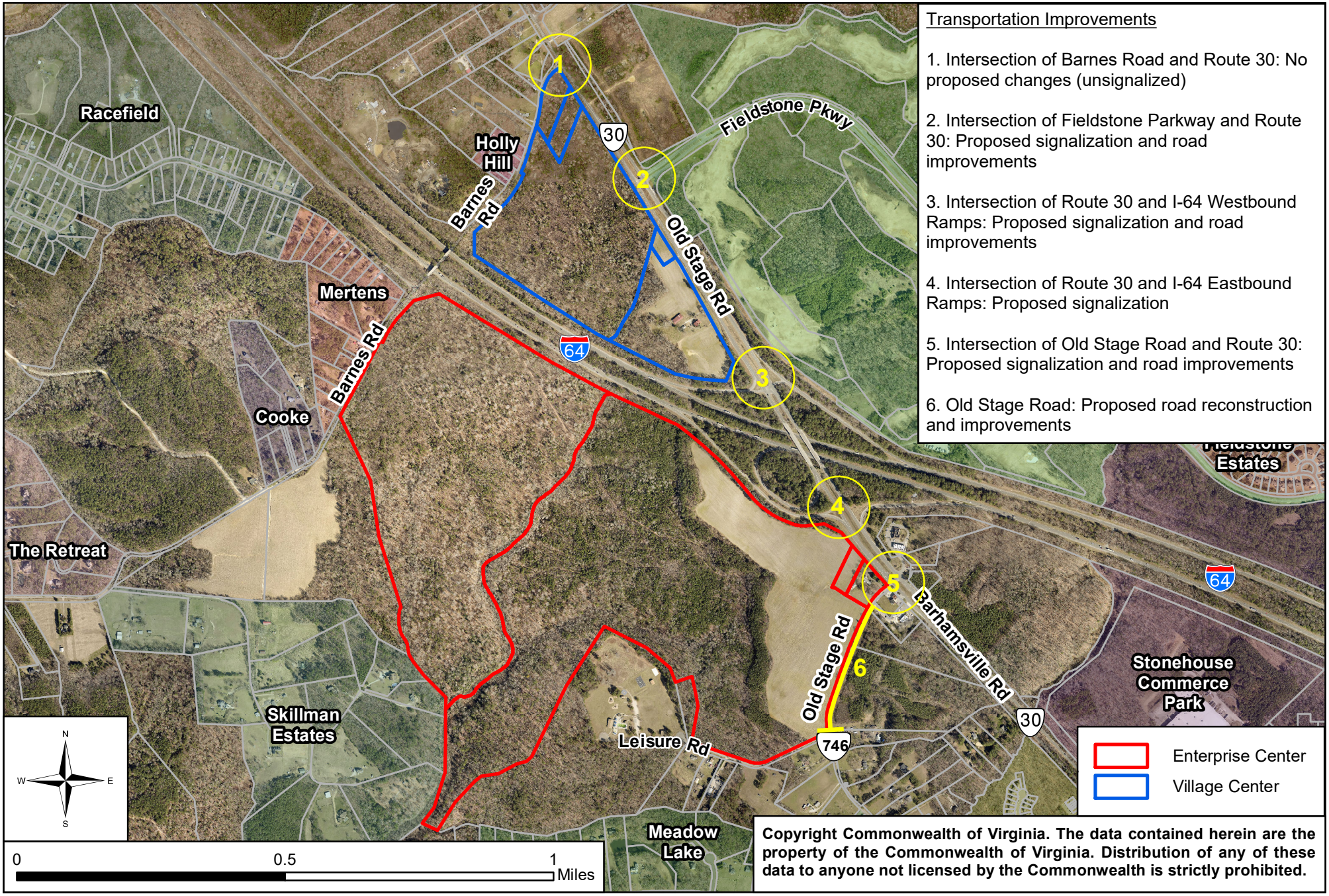
STONEHOUSE DISTRICT — JAMES CITY COUNTY — VIRGINIA

Project Contacts:	JAG
Project Number:	W10325-01
Scale: 1"=80'	Date: 2/7/19

Sheet Title:
CONCEPTUAL RT. 30 ROAD IMPROVEMENTS PLAN

Sheet Number
MP-6

JCC Z-19-0006, SUP-19-0005 & SUP-19-0006: Hazelwood Enterprise Center & Village Center



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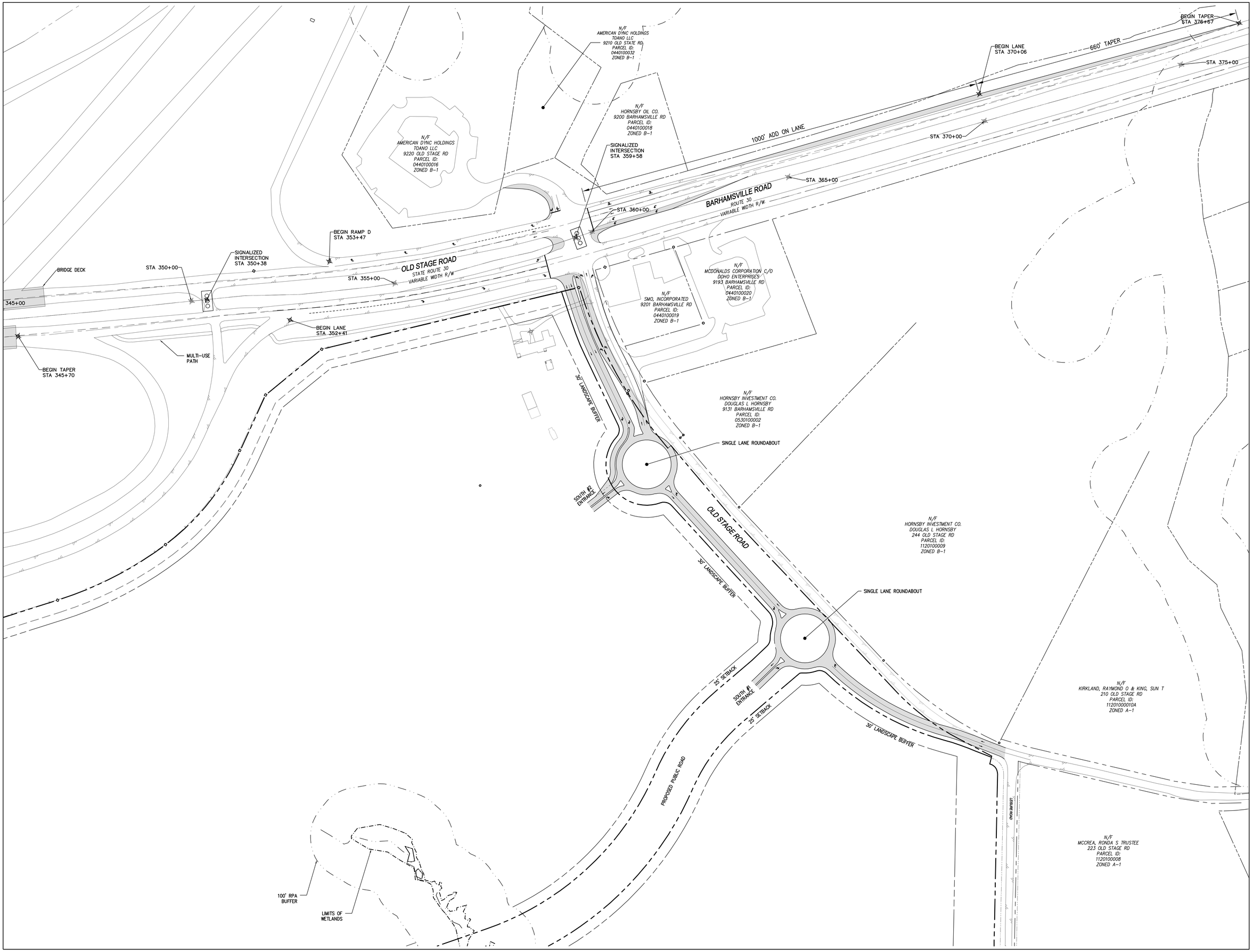

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STONEHOUSE DISTRICT — JAMES CITY COUNTY — VIRGINIA

Project Contacts:	JAG
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Scale: 1"=80'	Date: 2/7/19

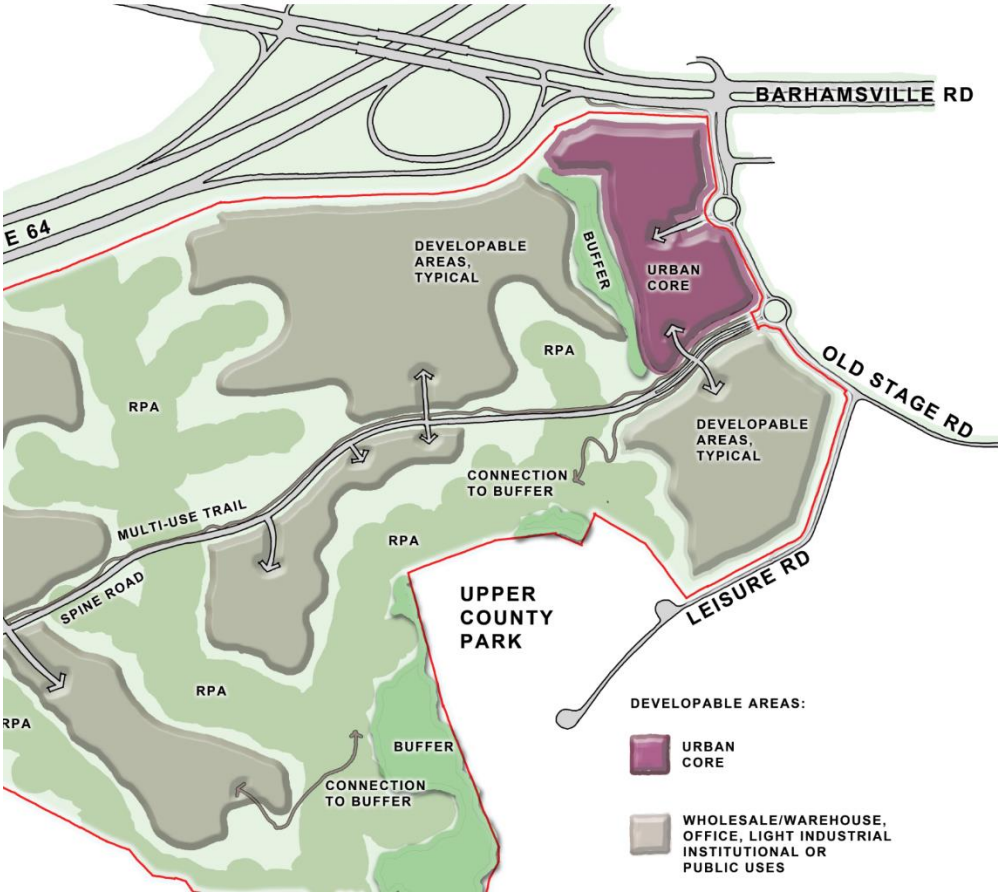
Sheet Title:
CONCEPTUAL RT. 30 ROAD IMPROVEMENTS PLAN

Sheet Number
MP-6

Design Guidelines
for
Hazelwood Farms Enterprise Center

James City County, Virginia

December 8, 2021



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Contents

Overview **2**

General Description **4**

View Shed and Approach **4**

Vehicular and Pedestrian Circulation **4**

Public Access Improvements **5**

Parking **6**

Building Pattern and Form **7**

General *7*

Large-footprint Buildings *7*

Small-Footprint Business/Support Buildings *10*

Urban Core, Generally *12*

Urban Core Commercial/Retail Buildings 12

Special Requirements for Specific Building Types 16

Landscape and Open Space Standards **17**

General Requirements *17*

Open Spaces and Pedestrian Ways *18*

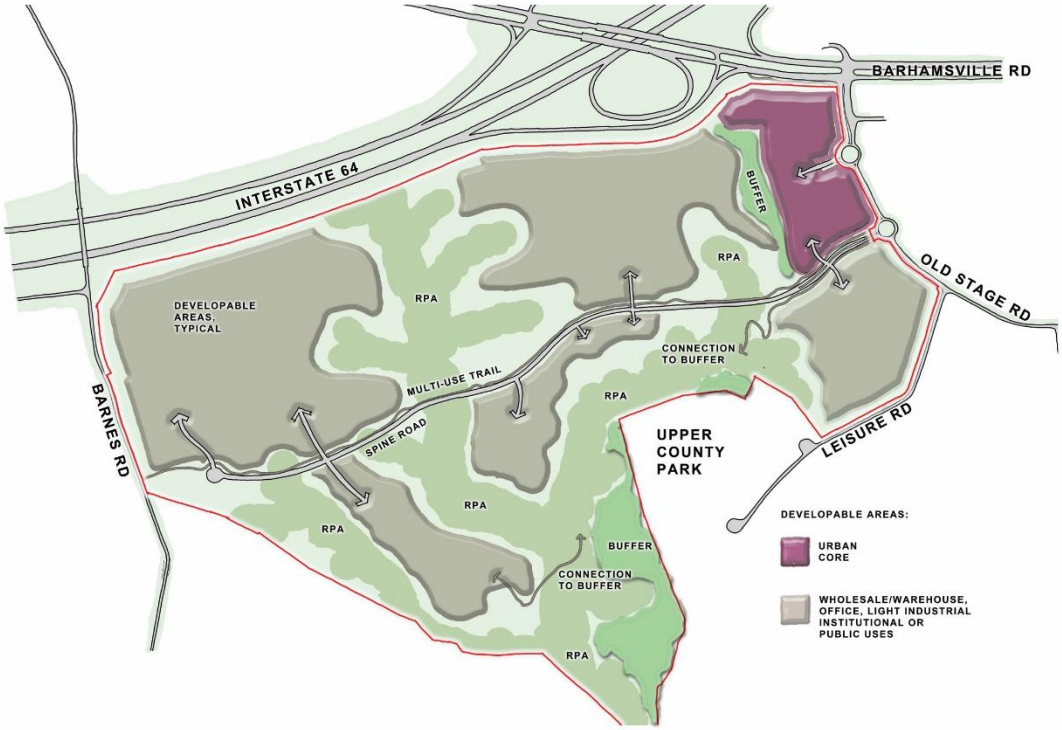
Parking Areas *18*

Signage **19**

Overview

The property is located in the Stonehouse district of James City County, Virginia, at the intersection of Interstate 64 and Route 30/Barhamsville Road. It lies entirely to the west side of Route 30/Barhamsville Road and is subdivided by Interstate 64 into two major sections. These guidelines are concerned with the south section, heretofore referred to as the "Enterprise Center."

The Enterprise Center has easy access from the interstate for east-bound traffic and shares a major intersection with established off-interstate businesses (fast-food, fuel stations). It is bounded to its south and east by Old Stage Road, Leisure Road and the James City County Upper County Park. East of the intersection is the already master planned as the Stonehouse Industrial Park and other complementary zoned property. Thus the Enterprise Center is proposed to be master planned as a mixed use development where a large portion is devoted to manufacturing and/or research facilities with large-footprint buildings and/or a single corporate office campus and/or warehousing & distribution centers. As transitional uses, portions of the Enterprise Center will be devoted to commercial development (near the Barhamsville-Stage Road intersection), designated at the "Urban Core", near other existing similar commercial uses.



Architecturally, the buildings on this parcel should read with a coherency, yet portray their distinct uses and invoke an appropriate sense of scale to their functions. Some buildings will be exceptionally large, housing office, research, warehousing and/or manufacturing functions. Others will be of a residential character and scale, while others will require an automobile-friendly siting. These design guidelines are

intended to promote standards of development for each of these functions such that all of the elements contribute to a coherent whole, consistent with the character of the surrounding area, but without unduly burdening the large-footprint user with afunctional architectural embellishment.

These standards are intended to comply with the James City County Zoning Ordinance Division 17, “Economic Opportunity,” generally, and sub-section 24-536.5, “Requirements for Improvements and Design,” in particular. Wherein any discrepancies or ambiguities may occur, these guidelines shall not be interpreted to allow standards which are less restrictive than the Zoning Ordinance. These guidelines are also written to satisfy the conditions of Landscape Standards, in accordance with Section 24-98(3) of the Zoning Ordinance.

The Developer shall be responsible for administration of these Design Standards and shall engage a licensed Architect ("Review Architect") to interpret their application for all aspects of the project through a formal, documented review process. Selection of the Review Architect shall be at the sole discretion of the Developer. The responsibility for administration of the Design Standards may be assigned to another entity (such as a "property owners association") in the future, at the sole discretion of the Developer.

It is recognized by the Owner and agencies having jurisdiction that these guidelines are written with an overarching intent of establishing a standard of quality and consistency in the architecture and site development for the property. It is furthermore understood that actual development and detailed planning may occur in the less immediate future when real estate market trends, best practices of land planning and transportation technology have changed in ways that cannot be imagined or anticipated at this time. As such these guidelines may be re-visited in the future and may be appropriately amended to reflect such changes at the discretion of the developer, property owner or property owners association, with the review and approval of the James City County Planning Director.

Design submission procedures and forms shall be developed and formalized by the developer prior to submission to James City County for building permits or site plan approvals. At a minimum, those procedures shall include:

- Conceptual Review of proposed site development of a given parcel as well as any implied master plan adjustments.
- Conceptual Review of proposed exterior architectural development with rendered perspectives and/or elevations, consistent with footprints depicted on the site development plan and indicating grade adjustments with reasonable accuracy.
- Final building design and site plan submissions with proposed materials and colors at appropriate scale and detail.
- Final building material and color selections submitted and documented with samples of predominant materials
- Final landscape and hardscape selections submitted and documented with photographs of key elements, such as street furnishing (e.g. bike racks, street light posts, trash receptacles, benches, etc…)

The developer shall commit to “sustainable” land planning and building design, incorporating best practices of LEED or other equivalent “Green Building” certification and assessment tools, in compliance with the “Endorsement of Green Building Incentives” policy of James City County (case no. ZO-00005-

2011). If the developer elects to obtain formal certification through such a program, it is recognized that they would be entitled to the benefits outlined in that official resolution.

General Description

The Enterprise Center is a mixed use of retail and business with an emphasis on large-footprint users for research, manufacturing and/or warehousing. This parcel location is ideal for arrival from the interstate by automobile. Thus, a portion of the site is to be organized to orient toward the traveler. It is also convenient for access to Hampton Roads, Richmond and technology rich areas to the north, west and south. Therefore the bulk of the site is organized around a generous spine road accessing the large-footprint building sites. The combination of these uses creates a complete environment in which to work and play in a walk-able environment. To that end, the developer and county staff are encouraged to allow for possible pedestrian/bike paths to provide connectivity directly to the park.

The Enterprise Center parcel is naturally subdivided by a small amount of environmentally sensitive wetlands. Buffers are to be utilized to both protect these areas and feature them for pedestrians, bikers and vehicles.

View Shed and Approach

As one approaches the property along Route 30/Barhamsville Road, one travels through a pastoral, wooded landscape punctuated with clusters of village-like development (e.g. Barhamsville, itself). When this property comes into view, it should have a similar character, utilizing architectural detail and massing that is of a pedestrian-friendly scale within parcels that border the Barhamsville-Old Stage Road-Leisure Road edges. This portion of the development, designated the “Urban Core” on the master plan and described further below, should create a “sense of place” consistent with the character of the surrounding area.

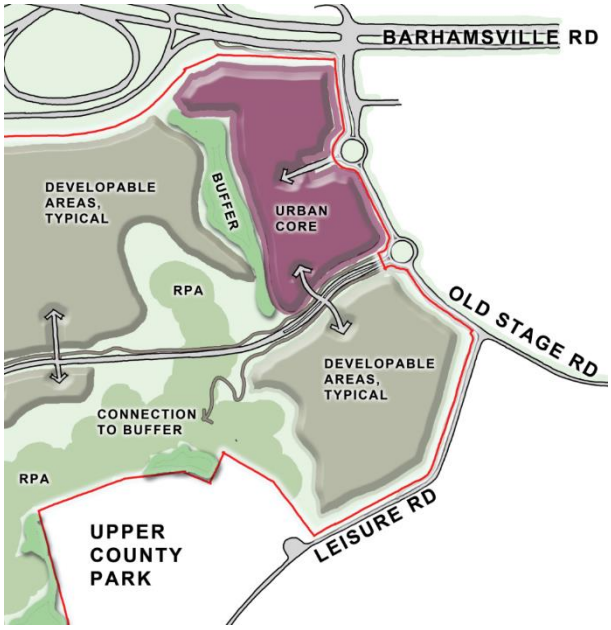
Building construction in the other parcels will necessarily be of a larger scale, due to the uses foreseen in them. As such, buffering between parcels will be critical to achieve a transition to support a cohesiveness within the development as a whole. The master plan proposes using natural wetlands to achieve that buffering, augmented by landscaping as needed.

Views into the property along I-64 and off-ramps are of special concern, as they constitute a “gateway” into the County and a first impression for many. Buildings which border the interstate highway right-of-ways are to retain a 50’ building setback and a 50’ landscaped buffer, minimum. Wherein, the proposed and existing landscape buffer which is retained does not effectively screen the proposed buildings, they shall be developed architecturally in proportion to their increased visibility from I-64. Generally, large unadorned facades, where necessary, should be of a dark color to blend into the natural environment as the backdrop to retained or newly developed landscape buffering.

Vehicular and Pedestrian Circulation

The parcel is organized around a “spine road” that terminates at Old Stage Road. This main spine road will provide a safe and park-like entrance into and through the development, channeling both auto and truck/delivery vehicles to the large-user sites. A physically separated multi-use path is to be planned to provide both workers and nearby residents a connection to the outdoors.

The spine road is to be designed and developed as a park-like boulevard that provides a safe and pleasant drive as a common experience connecting all of the parcels of the Enterprise Center. The initial portion of the drive, extending from Old Stage Road, should have a landscaped median for some distance at its beginning. Beyond that point, at least one side should be tree-lined separating vehicular traffic from a minimum 8’-0” to 10’-0” wide multi-use trail. Both sides should be neatly landscaped to the extent of active development.



The parcels fronting on Old Stage Road will be developed as an “Urban Core,” as described in Section 24-536.1 of the Zoning Ordinance. As such, it allows for convenient access by automobile to and from the interstate. The portion closest to Route 30/Barhamsville Road will likely be developed as a retail/restaurant enclave, extending the existing commercial development pattern along Route 30/Barhamsville Road. Detailed development of this entire area will entail strong pedestrian/cycling connections to the spine road, the commercial area, Route 30/Barhamsville Road, and Upper County Park.

The remaining portions of the site are interwoven with ravines and some wetlands. Development will work within grade limitations to the greatest extent practical, consistent with the property usage. Pedestrian connections through wetlands to areas contiguous with Upper County Park should be considered, providing both an effective buffer between the park and Enterprise Center as well as a nature-rich amenity for both workers and nearby residents.

Public Access Improvements

Vehicular and non-vehicular public access to Enterprise Center is provided by extensive improvement to roads, VDOT shared use paths on all existing public road frontages, creation of an internal public road with VDOT shared use path and accommodations for bus service.

Vehicular access to the site includes the following road improvements:

- Reconstruction of Rt. 746 Old Stage Road from Rt. 30 to Leisure Road on a new alignment

    - Two single lane roundabouts providing direct access to the Enterprise Center
    - Four travel lanes with turn lanes form Rt. 30 to first roundabout
    - Two lanes from first roundabout to second roundabout to Leisure Road.
- Expansion of the Rt. 30/Rt. 746 Old Stage Road intersection with additional turn lanes on three approaches, widening and on Rt. 30, and signalization.
- A spine within the site connecting to the second roundabout.

The improvements at Rt. 30/Rt. 746 Old Stage Road provide the capacity to accommodate traffic from Enterprise Center and other planned developments in the area. The four-lane section of Rt. 746 from Rt. 30 to the first roundabout provides a transition from arterial traffic operations to local street traffic. The two roundabouts provide a local street, low speed means of effective access on a new two-lane road alignment for Rt. 746 Old Stage Road.

Non-vehicular access is to be provided by VDOT shared use paths (10 foot wide):

- On the west side of Rt. 30 from I-64 ramps to Old Stage Road: approximately 1000 feet. This section is within the I-64 limited access fence and is contingent upon Federal and State approval.
- On the north side of reconstructed Rt. 746 Old Stage Road from Rt. 30 to Leisure Road: approximately 1600 feet.
- On the east side of Leisure Road along the property frontage: approximately 1400 feet.
- On the east side of the spine road from Rt. 746 Old Stage Road to a connection to Barnes Road: approximately 5600 feet.
- Total: approximately 9600 feet.

These shared use paths are to be built to VDOT specifications for VDOT maintenance. These paths will be located with public rights of way or on easements dedicated to public use and VDOT maintenance.

A bus stop will be included as approved by WATA. Bus stops on public roads may include bump outs designs and will include access to the shared use path system. Bus stops within the private property parking lots will include landings for bus patrons and pedestrian connections to shared used paths.

Parking

Parking is to be arranged so as to maintain a park-like setting for the spine road with a comfortable degree of screening and, simultaneously, adequate view lines for a high degree of safety.

1. Parking for the "urban core" commercial parcel shall be arranged in an easily navigable shared parking court, accessible to all of the buildings along Old Stage and Route 30/Barhamsville Roads. Additional small parking enclaves between commercial/retail buildings are also acceptable and may be integrated with drive-through window functions at the buildings.

2. Parking for the large-user sites is to be distributed to the degree practical, but always well screened from the spine road and Interstate. Special attention should be paid to "way-finding" signage and security controls to enable visitors to find public entrances at large facilities. Security Gates must be located a minimum of 100' from the spine road.
3. Parking for any small-user sites that may be accessed from the spine road must similarly provide effective screening. Security Gates are not allowed except on a case-by-case basis, based upon adequate analysis showing back-up onto the spine road will not occur.
4. Parking for uses in more visually sensitive areas should be located behind buildings or otherwise screened using means such as berms, fencing or hedges.
5. Landscaping within these parking enclaves shall be minimized in favor of more effective landscaping at their perimeter for screening. Parking capacity shall be provided in accordance with the James City County Zoning Ordinance, the location and number to be confirmed as a part of the final site plan development. All parking lot landscaping shall meet or exceed zoning ordinance requirements.

Building Pattern and Form

General

There are three general categories that each building project will fall into:

1. Large-footprint (research, manufacturing, warehouse, etc…)
2. Small-footprint/Business Support (small offices, small storage, etc…)
3. Commercial/Retail Buildings

To promote an architectural consistency within the Enterprise Center it is anticipated that all of the buildings will be designed with a contemporary architectural character, utilizing more commercial-like materials and fenestration. However, within that contemporary vocabulary, buildings are expected to strive to be responsive to a human pedestrian scale. Strategies for doing so will vary, depending on the building use. Thus, each category will be taken in turn:

Large-footprint Buildings

1. Large-footprint buildings are generally anticipated to be single-user buildings which are to have a large, industrial size. Simple, unadorned building massing is anticipated. However, user entrances, exits and loading docks represent opportunities for architectural development to address the human scale. While the unadorned mass of the building should be a dark tone and of a color hew that allows it to blend into the tree canopies, openings in the building should be an opportunity to interrupt that pattern, catching the eye with colorful or transparent elements that recede into or project from the main building envelope. Common considerations in the design of these elements include:

1.1. The main public/visitor entrance should be more predominant than other more utilitarian or employee oriented entrances.

1.2. While well-proportioned to the mass of the building, they should also be well proportioned to the pedestrian. Devices for accomplishing this may include canopies for rain protection, bris-soleil or trellis for sun protection and seat-walls or planters to guide pedestrian circulation to the appropriate arrival point.

1.3. Architectural styling of these elements should relate and/or respond to the predominant materials in the rest of the building while still relating to the smaller footprint buildings. Thus it is anticipated they may be contemporary style in detail, while making allusions to historic styles common to the area. Historic and Classical Revival elements are also acceptable, but should be tastefully designed with attention paid to proportion, scale and detail.

2. Edge Definition and Screening

2.1. Fences and walls shall be used for screening mechanical and utility systems in areas adjacent to public parking, public right-of way and/or facing the spine road architecturally consistent with the building designs. Walls are to be made of industrial or commercial quality materials found in the main building (such as concrete or metal panels). Landscaping may be used in conjunction with fences and walls to better define edges or screen views and activities.

3. Building Materials - General

3.1. Building walls: brick, metal panels, clad wood, wood clapboard, wood board and batten, and fiber cement siding. Stucco (including EIFS) may be used in limited amounts at key features. In no case may the portion of stucco exceed 20% of a façade.

3.2. Arcades and colonnades: brick, stucco, wood, poly-stone, fiberglass, structural steel (painted), and structural aluminum.

3.3. Porticos, porches and columns: painted wood, cellular pvc, painted metal, poly-stone, fiberglass, structural steel (painted), and structural aluminum.

3.4. Posts, spindles, balusters: pained wood, cellular pvc, painted metal, poly-stone, fiberglass, structural steel (painted), and structural aluminum.

3.5. Stoops, plazas, decks and exterior stairs: brick, concrete, stamped concrete

3.6. Awnings, bris soleils and canopies: canvas-covered metal, structural steel (painted), and structural aluminum

4. Roofs

4.1. Recommended Materials

4.1.1. Visible, Sloped Roofs: Wood shingles, metal panel, slate, synthetic slate, architectural grade asphalt or fiberglass shingle.

4.1.2. Live Roofs: Live roofs are permissible, to be approved on a case-by-case basis and should be integral to the architectural character of the entire building or concealed from view by parapets

4.1.3. Gutters and downspouts: galvanized aluminum, painted metal, copper

4.1.4. Exposed Flashing: copper, lead coated copper, galvanized aluminum

4.2. Roof Shapes

4.2.1. Large-footprint buildings are expected to have simple, economic overall building mass and roof forms with shallow slopes and/or parapets. However, some variation, especially at entrances and loading docks should be utilized to create interest, balance and visual cues for wayfinding. See “commercial/retail buildings” below for general guidance with respect to roof forms at these locations.

4.3. Fenestration

4.3.1. Window Glazing: Reflective glass (such as black spandrel) is unacceptable and will not be permitted. All window glazing should allow visibility to the interior of the building. Windows generally should be treated as “punched openings” in a façade, rather than as a siding or cladding material.

4.3.2. Windows, doors, louvers, etc… are opportunities to not only punctuate the façade, but establish rhythm, balance and organization to the building. It is anticipated that significant amounts of fenestration will be steel or aluminum storefront or curtainwall, although use of other materials at the entrance elements of buildings will be allowed, if consistent with the design concept. See “commercial/retail buildings” below for guidance.

4.3.3. Metal panel siding color and transparency can also be thought of as elements of fenestration. For example, reducing the scale of a façade can be accomplished by horizontal bands of color depth along a façade.

Small-Footprint Business/Support Buildings

1. Small Footprint Business/Support buildings are generally anticipated to be multi-tenant office or warehousing buildings in support of or in proximity to the large-footprint users. Unlike the large-footprint buildings, they are anticipated to have more active facades and building massing. Simple, unadorned building massing is not acceptable.

1.1. They should be designed to be seen from the spine road.
1.2. Each building shall also have a sidewalk connection to the spine road and/or the multi-use trail adjacent to the spine road.
1.3. Architecturally, they should relate to the public entrance elements of the large-footprint users or the commercial/retail buildings in the urban core.
1.4. The height of each building shall be limited by code and zoning ordinance as well as specific tenant requirements. Mechanical equipment shall be screened from view utilizing roof-top equipment or, if ground mounted, fencing and/or landscaping. Tenant entrance elements should exceed the height of the main building form.

2. Edge Definition and Screening

2.1. Fences and walls shall be architecturally consistent with the building designs. Walls are to be made of a combination of materials, including concrete, brick, decorative cmu, siding, stone, and to a limited extent, stucco. Fences and privacy screens are to be made of wood pickets, pvc lumber, wrought iron, vinyl board on board fencing, or painted metal. Chain link fences are not permitted unless screened with landscaping. Landscaping may be used in conjunction with fences and walls to better define edges or screen views and activities.

3. Scale and Articulation

3.1. Scale is the relationship in size between buildings and the human form. Articulation is the way in which architectural elements are used to reduce the scale of the masses that compose the building form. Buildings shall be designed to appear smaller through the articulation of the overall massing and organizing it as a collection of smaller component masses. The use of architectural elements such as bays, balconies, porches, loggias and arcades add interest to building facades and aid in

relating the scale of any building to human dimensions. Roofs may be articulated through the use of dormers, lanterns, monitors, widow's watches and other roof¬top elements. Each of these devices adds character and interest to the buildings of the development which, in turn, reinforces the village character intended by these guidelines.

3.2. There shall be an adequate variety of architectural elements along all facades to distinguish individual tenants while remaining stylistically consistent within the entire development.

4. Building Elements

4.1. Building Materials - General

4.1.1. Building walls: brick, concrete, metal panel, clad wood, wood shingle, wood clapboard, wood board and batten, and fiber cement siding. Stucco and/or EIFS is allowable on a limited basis only (less than 20% of a given façade)

4.1.2. Exposed Foundation Walls: Brick or brick facing, or stucco finished poured concrete or concrete block.

4.1.3. Materials shall transition and terminate appropriately. If a material transition is desired, such transition shall occur at interior corners, not outside corners. Materials shall be utilized to express component massing and shall not be treated as surface decoration. No more than two wall materials may occur on any individual building.

4.1.4. Arcades and colonnades: brick, stucco, wood, poly-stone, fiberglass, structural steel (painted), and structural aluminum.

4.1.5. Porches, columns: painted wood, cellular pvc, painted metal, poly-stone, fiberglass, structural steel (painted), and structural aluminum.

4.1.6. Posts, spindles, balusters: pained wood, cellular pvc, painted metal, poly-stone, fiberglass

4.1.7. Stoops, exterior stairs: brick, wood, or steel

4.1.8. Decks: steel, concrete, wood, composite lumber, or high quality synthetic wood decking

4.1.9. Awning and canopies: canvas-covered metal or wood structure, structural steel (painted), and structural aluminum.

4.2. Roofs

4.2.1. Recommended Materials

- Roofs: Metal Panel Wood shingles, galvanized or painted metal seamed, copper, lead-coated copper, slate, synthetic slate, architectural grade asphalt or fiberglass shingle.
- Live Roofs: Live roofs are permissible, to be approved on a case-by-case basis and should be integral to the architectural character of the entire building or screened by parapet.
- Gutters and downspouts: galvanized aluminum, painted metal, copper
- Exposed Flashing: copper, lead coated copper, galvanized aluminum

4.2.2. Roof Shapes

- Buildings shall have a varied character of industrial and traditionally shaped roofs.
- Principal Roofs: Gabled, hipped, hipped gables, gabled hips or gambrel in a symmetrical fashion with a slope of 6:12 to 12:12. Alternatively, the principal roof may be lower slope

or low-sloped and parapetted, if it is interrupted with secondary elements, similar to the large-footprint buildings.

- Parapets: Horizontal
- Dormers: Shed, Pitched or eyebrow
- Special roof-top elements: Symmetrically situated or aligned with the rhythm of structural bays and fenestration.
- Roof-top mechanical enclosures: Concealed from view by sloped roofs of the character described above.

4.3. Fenestration

4.3.1. Window Glazing: Reflective glass (such as black spandrel) is unacceptable and will not be permitted. All window glazing should allow visibility to the interior of the building. Windows generally should be treated as "punched openings" in a façade, rather than as a siding or cladding material.

4.3.2. Windows: steel or aluminum storefront, wood, painted metal, vinyl, metal clad wood

4.3.3. Bay windows: wood, metal clad wood, painted metal, with metal tops

4.3.4. Doors: painted wood, metal clad wood, painted metal, fiberglass resin

4.3.5. Garage doors: metal roll up, painted wood, metal with incorporated glazing, clad wood

4.3.6. Shutters: wood, fiberglass resin

4.3.7. Security doors and grilles: metal

Urban Core, Generally

Building design in the "Urban Core", as designated on the master plan, will be coordinated with regard to color, materials, architectural form and detailing to achieve design harmony, continuity, and horizontal and vertical relief and interest. This area will focus on pedestrian-scaled design, a mixing of uses within buildings where possible, and general design standards (such as landscaping, road design, etc.) that may be different from the design of the primary uses within an economic opportunity area. Building facades facing a road shall be designed with the same quality appearance as a front façade. No more than 25% of the required parking in the Urban Core shall be located between the building façades and Old Stage Road (Route 30 & 746). Any use incorporating a drive-through element shall not face Route 30.

Example of a proposed development evocative of nearby Toano

Urban Core Commercial/Retail Buildings

1. Commercial/Retail buildings are generally anticipated to be single-user buildings which are to have a village or small-urban scale. Simple, unadorned building massing is not acceptable.

1.1. They should be predominantly slope-roofed or heavily articulated parapet forms and designed to be seen from all four sides.

1.2. Where drive-through windows are incorporated, they should not be located on the side of the building facing the public right-of-way.

1.3. Parking for each building should be placed to the side or behind, away from the public right-of-way, Old Stage Road, and be screened with a landscaping device, such as a berm. Generally, it is anticipated the main entrance for each building will face a shared parking court. In such cases, there should also be a public entrance fronting Old Stage Road (or appear to front it). If the main entrance to the building faces to a side parking area, a well landscaped, prominent sidewalk should connect that entrance to the shared parking field as well as Old Stage Road.

1.4. Each commercial/retail building shall also have a sidewalk connection to a common sidewalk to be constructed along Old Stage Road.

1.5. Architecturally, they should relate to the hardscape and landscaping of spine road. While reference to corporate chain architecture is not prohibited, it must be customized to appear as part of a consistent development theme.

2. The height of each building shall be limited by code and zoning ordinance as well as specific tenant requirements. Mechanical equipment shall be screened from view utilizing roof-top equipment or, if ground mounted, fencing and/or landscaping. Tenant entrance elements should exceed the height of the main building form.

3. Edge Definition and Screening

3.1. Fences and walls shall be architecturally consistent with the building designs. Walls are to be made of a combination of materials, including brick, decorative cmu, siding, stone, and to a limited extent, stucco. Fences and privacy screens are to be made of wood pickets, pvc lumber, wrought iron, vinyl board on board fencing, or painted metal. Chain link fences are not permitted. Landscaping may be used in conjunction with fences and walls to better define edges or screen views and activities.

4. Scale and Articulation

4.1. Scale is the relationship in size between buildings and the human form. Articulation is the way in which architectural elements are used to reduce the scale of the masses that compose the building form. Buildings shall be designed to appear smaller through the articulation of the overall massing and organizing it as a collection of smaller component masses. The use of architectural elements such as bays, balconies, porches, loggias and arcades add interest to building facades and aid in relating the scale of any building to human dimensions. Roofs may be articulated through the use of dormers, lanterns, monitors, widow's watches and other roof¬top elements. Each of these devices adds character and interest to the buildings of the development which, in turn, reinforces the village character intended by these guidelines.

4.2. There shall be an adequate variety of architectural elements along all facades to distinguish individual shops while remaining stylistically consistent within the entire development.

5. Building Elements

5.1. Building Materials - General

5.1.1. Building walls: brick, stucco, clad wood, wood shingle, wood clapboard, wood board and batten, and fiber cement siding.

5.1.2. Exposed Foundation Walls: Brick or brick facing, or stucco finished poured concrete or concrete block.

5.1.3. Materials shall transition and terminate appropriately. If a material transition is desired, such transition shall occur at interior corners, not outside corners. Materials shall be utilized to express component massing and shall not be treated as surface decoration. No more than two wall materials may occur on any individual building.

5.1.4. Chimneys: brick, stucco, or tabby (coastal concrete)

5.1.5. Arcades and colonnades: brick, stucco, wood, poly-stone, fiberglass

5.1.6. Porches, columns: painted wood, cellular pvc, painted metal, poly-stone, fiberglass

5.1.7. Posts, spindles, balusters: pained wood, cellular pvc, painted metal, poly-stone, fiberglass

5.1.8. Stoops, exterior stairs: brick, wood, or steel

5.1.9. Decks: wood, concrete, composite lumber, or high quality synthetic wood decking

5.1.10. Awning and canopies: canvas-covered metal or wood structure

5.2. Roofs

5.2.1. Recommended Materials

5. Roofs: Wood shingles, galvanized or painted metal seamed, copper, lead-coated copper, slate, synthetic slate, architectural grade asphalt or fiberglass shingle.
6. Live Roofs: Live roofs are permissible, to be approved on a case-by-case basis and should be integral to the architectural character of the entire building.
7. Gutters and downspouts: galvanized aluminum, painted metal, copper
8. Flashing: copper, lead coated copper, galvanized aluminum

5.2.2. Roof Shapes

- Buildings shall have a varied character of traditionally shaped roofs.
- Principal Roofs: Gabled, hipped, hipped gables, gabled hips or gambrel in a symmetrical fashion with a slope of 6:12 to 12:12.
- Secondary Roofs: Shed with minimum slope of 2:12.
- Flat Roofs: Permitted as a primary roof when interrupted with other sloped or parapeted roof elements. Permitted as a secondary roof when in the form of a special rooftop element or tower. Flat roofs generally are to have parapets, balustrades or railings.
- Parapets: Horizontal
- Dormers: Shed, Pitched or eyebrow
- Special roof-top elements: Symmetrically situated or aligned with the rhythm of structural bays and fenestration.
- Roof-top mechanical enclosures: Concealed from view by sloped roofs of the character described above.

5.3. Fenestration

5.3.1. Window Glazing: Reflective glass (such as black spandrel) is unacceptable and will not be permitted. All window glazing should allow visibility to the interior of the building. Windows generally should be treated as “punched openings” in a façade, rather than as a siding or cladding material.

5.3.2. Recommended Materials

- Windows: wood, painted metal, vinyl, metal clad wood
- Bay windows: wood, metal clad wood, painted metal, with metal tops
- Doors: painted wood, metal clad wood, painted metal, fiberglass resin
- Garage doors: painted wood, metal with incorporated glazing, clad wood
- Shutters: wood, fiberglass resin
- Security doors and grilles: metal

5.3.3. Configuration

- Windows: Rectangular with a minimum proportion of 1.5 vertical to 1 horizontal.
- Bay windows: rectangular or chamfered.
- Doors: rectangular with rectangular transoms, if used. Glazing within doors shall be consistent with window glazing.
- Garage doors: 16’ max. in width, articulated to appear as multiple doors where possible.

- Shutters: Operable or given the convincing appearance of being operable and sized to fully cover the opening.
- Security doors and grilles: metal
- Service Doors (rear facade only): Overhead coiling metal or folding metal.

Special Requirements for Specific Building Types

There are several building types which, under the Economic Opportunity zoning category, would require a Special Use Permit approval. However, to expedite the development of the project in the future, the proposed zoning application seeks approval of these specific, special uses:

- Fast Food Restaurants
- Truck Terminals
- Heavy Equipment and/or Machinery Sales and Service
- Large Manufacture and Processing of Textiles Facilities

Understanding that these uses typically require a Special Use Permit in order to address exceptional externalities characteristic of their use, below is a listing of additional design constraints for each. Please note that each type is also restricted to certain areas of the master plan, within the parcel. As such, each would be constrained by the specific requirements of that area, as described above, as well as the additional requirements of this section.

1. Fast Food Restaurants: Fast Food Restaurants will be limited to the Urban Core area. While national and regional franchise facilities are anticipated, unmodified standard corporate building designs will generally not be acceptable. Corporate building models must be modified to be in keeping with the guidelines above. Allusions to standard corporate elements may be acceptable, unless inconsistent with the guidelines and local vernacular/rural/historic architecture. Other specific requirements include:

1.1. Drive-through windows/canopies, when utilized, should face a public way (such as Old Stage Road) and be developed as a entry or porch element, matching the design and building materials of the fast-food restaurant.

1.2. Drive-through lanes, when provided, should not wrap more than two sides of the building and allow for a prominent, pedestrian entrance without conflict with the drive-through queue.

1.3. A sidewalk must extend from the main entrance to a sidewalk along any adjacent pedestrian ways.

2. Truck Terminals: Truck Terminals will be limited to the Large Building Footprint areas. In addition to the criteria above, the loading docks of these facilities may not face toward the Spine Road. If perpendicular to the Spine Road, the loading dock and docked trucks must be effectively screened by structure or evergreen landscaping of adequate size and thickness.

3. Heavy Equipment and/or Machinery Sales and Service: These facilities are not allowed in the Urban Core. In addition to the criteria above, the following restrictions will also apply:

3.1. Exterior display of equipment and vehicles for sale will be limited to areas that are designed for that purpose, and designated as such on an approved site plan. These areas may be landscaped in such a way as to appear coordinated with the overall site landscaping when not in use. Lawns and Landscaping should also be designed so as to accommodate traffic and long periods of shade.

3.2. Garage Doors shall not face the Spine Road.

3.3. Areas for the queuing of vehicles to be serviced or for vehicles which have been serviced shall be screened from the Spine Road and adjacent properties.

4. Manufacture and Processing of Textiles Facilities (in excess of 10,000 sf): These facilities will be limited to those areas designated for large footprint users. In addition to the applicable requirements above, these facilities must be designed with adequate waste collection and treatment areas. Any exterior areas used for storage of supplies, collection of waste, or treatment of waste water, shall be fully screened from view by structures and be contained to fully protect them from negatively impacting the environment.

5. Convenience Stores: Convenience Stores shall be designed so as to safely and effectively separate vehicular from pedestrian traffic with techniques that allow for convenient access by automobile but without sacrificing pedestrian access and connectivity. Convenience Stores with Fuel Sales and canopy must have a canopy that is visually subservient to the main store building. Canopies must relate to the store building architecturally in form, color and materials. This includes columns, ceilings, and all exposed trim, fascias and roofing. The roof element itself shall reference vernacular roof forms (gabled, hipped, mono-pitched, mansard, etc..) while being consistent with the main building form. A predominant ceiling height is limited to 15' maximum, so as not to dominate the main building form. Use of exposed trusses and/or decorative elements that reduce the industrial feel of the canopy is strongly encouraged. There shall be no more than two signs on the canopy and shall be integrated into the canopy design so as not to appear "mounted" as an afterthought. Halo lighting is allowed. The background of any backlit signs shall be opaque, allowing only lettering and logos to broadcast light. String or tape lighting is not allowed. Electronic lettering in canopy signs is not allowed.

Landscape and Open Space Standards

General Requirements

Landscaped open spaces, parking areas and pedestrian ways shall have emphasis placed on their edges either with buildings or plantings to create the effect of "outdoor rooms." Walk-ways adjacent to

buildings shall reinforce the sense of a public street. Walk-ways adjacent to open spaces shall be lined with trees to reinforce the edge of the open space. All dumpsters, ground mounted HVAC, mechanical units and cart corrals which are adjacent to buildings shall be screened by an enclosure composed of masonry, closed cell PVC, prefinished metal or cementitious panels, in detail and colors to blend with adjacent building materials. Where present, such features shall be shown on the site plan for the adjacent building, and shall be reviewed and approved by the Director of Planning for consistency with this condition.

The following apply generally to all areas, except where specifically identified.

Open Spaces and Pedestrian Ways

Pedestrian ways are to be planted with trees spaced a maximum of 40’ o.c. Shade/Canopy type trees are the preferred tree type for all formal open spaces; ornamental trees may be used to emphasize special open spaces and pedestrian ways. In all cases, species and planting sizes are to be selected to be in keeping with the scale of the space in which they will reside. Street-lights shall be provided in public ways and along the multi-use trail and sidewalk system and shall be spaced so-as not to conflict with tree plantings and be of a pedestrian scale and design, a maximum of 16' in height.

Parking Areas

Parking shall be arranged in simple, rational parking enclaves.

Landscaping within parking enclaves shall be minimized in favor of more effective landscaping at their perimeter for screening.

Parking layout is to be simple and logical. Fencing and landscape screening is to be utilized to effectively screen parking areas from adjacent properties, public right-of-ways and the spine road. Lighting in parking areas shall be taller than the pedestrian oriented fixtures, providing a reasonable degree of ambient lighting for public safety.

Parking layout for large users (such as warehouses, manufacturing facilities, distribution centers, etc..) should be organized for functional efficiency of the large vehicles or large number of vehicles they may have to accommodate. Consideration should be given for separate visitor parking and effective natural screening of loading dock and employee parking areas.

Signage

Signs are to be submitted as part of building design and park design submissions.

All freestanding signage, including entrance signage located at the Property's two entrances as shown on the Master Plan, shall be externally illuminated monument-style signs. The base of the signs shall be brick or shall use materials similar in type and color with the site architecture. The design of the signs shall be approved by the Director of Planning prior to final site plan approval for consistency with this condition.

Monument signs are encouraged. Pedestrian oriented, architecturally detailed signs are also encouraged. Wall-mounted blade signs and simple pole-mounted signs are prohibited.

Building face signs must be coordinated with the architectural design of the building and sized to fit naturally into a sign band or other location anticipated in the building design. Roof mounted signs are prohibited.

Where allowed by ordinance, a secondary building face sign facing a public street is allowed, but must be sized and designed to coordinate with the building architecture.

Large single users (such as warehouses, manufacturing facilities, distribution centers, etc..) are encouraged to size building face signage appropriate to the distance at which they will be viewed, consistent with the James City County sign ordinance, designed tastefully as an architectural element in and of itself.

Large single users are encouraged to provide directional signage for both vehicular and pedestrian way-finding. Such signage may include logos and should be in keeping with the particular developer's architectural theme.

All signs must conform with the James City County sign ordinances and be approved by James City County subsequent to approval by the developer.

It is anticipated there will be significant entrance elements with tasteful monument signage at the two entrances to the property. These design elements may but need not relate to the Village entrance element, but should be consistent with each other in material and character. Monument signs shall comply with the James City County zoning ordinance, should identify the development, and may include names of major businesses within.

Community Impact Statement

Rezoning

Of

The Enterprise Center
at
Hazelwood Farms

Prepared For

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TABLE OF CONTENTS

I. INTRODUCTION....3

II. THE PROJECT TEAM 5

III. PLANNING PROJECT AND CONSIDERATIONS DESCRIPTION....5

IV. ANALYSIS OF IMPACTS TO PUBLIC FACILITIES AND SERVICES....6
- A. Public Water Resources 6
- B. Public Sewer Resources 7
- C. Public Schools.... 7
- D. Fire Protection and Emergency Services 8
- E. Solid Waste....8
- F. Franchise Utility Service Providers 8
- G. Parks and Recreation……..8
- H. Transit……9

V. ANALYSIS OF ENVIRONMENTAL IMPACTS 9

VI. ANALYSIS OF STORMWATER MANAGEMENT 9

VII. ANALYSIS OF IMPACTS TO TRAFFIC....10

VIII. ANALYSIS OF FISCAL IMPACTS 10

IX. ANALYSIS OF CULTURAL RESOURCES IMPACTS....11

X. ANALYSIS OF NATURAL RESOURCES IMPACTS....11

XI. CONSTRUCTION PHASING 11

XII. CONCLUSION....11

LIST OF TABLES

Table 1-Projected Water usages....6
Table 2- Projected Wastewater Flows 7
Table 3-School Capacity 8

LIST OF EXHIBITS

Exhibit 1-Location Map 4

APPENDIX

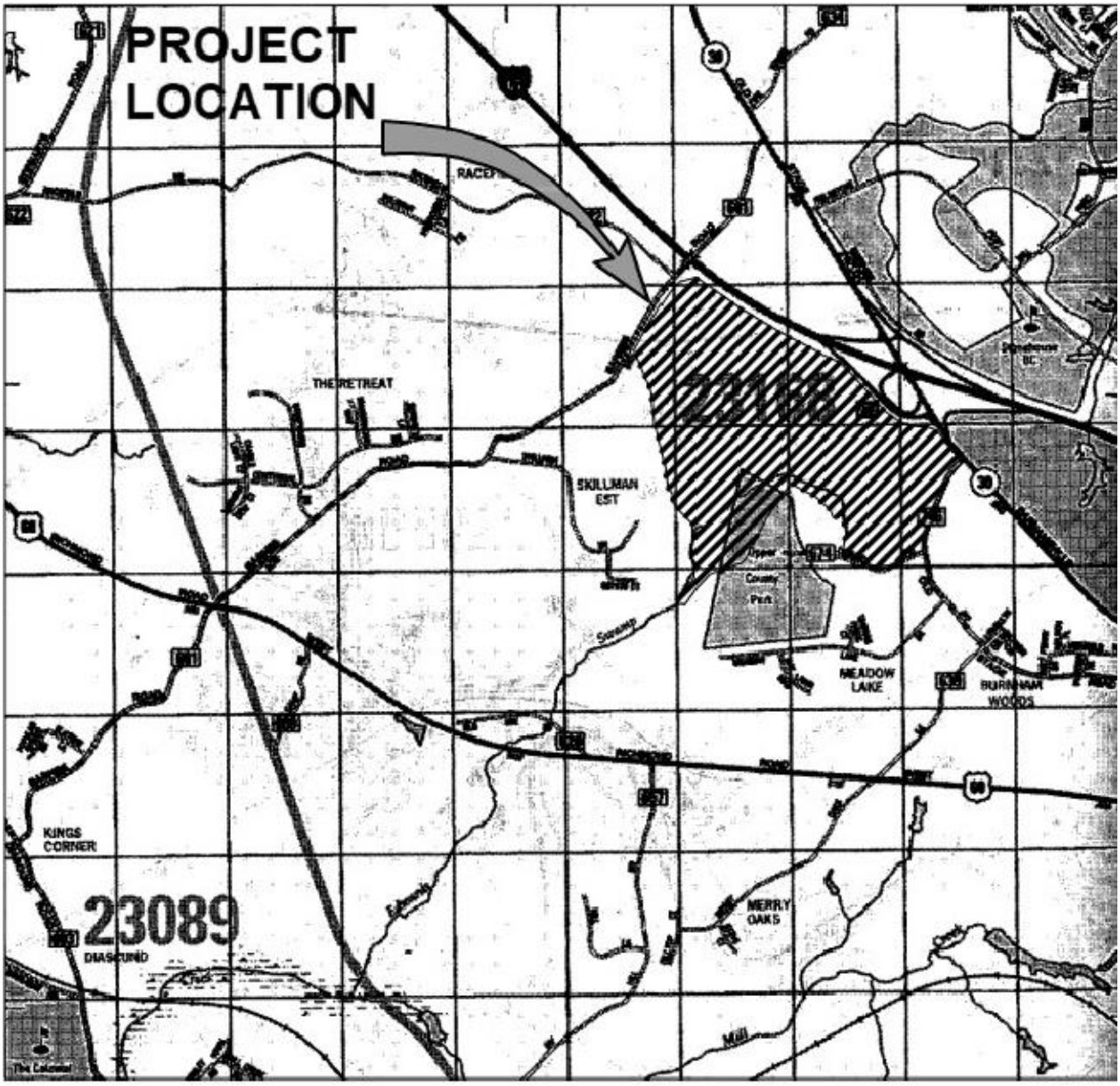
Traffic Analysis …….… (Under Separate Cover)
Fiscal Analysis ……..…...
Phase I Cultural Resources Assessment……..……
Endangered Species Report ……..…...

I. INTRODUCTION

On behalf of Hazelwood Farms, LLC, Timothy O. Trant II of Kaufman & Canoles, P.C. proposes a Rezoning for several parcels of land within the Stonehouse district which is to be referred to as the Enterprise Center (Southern parcel). These parcels are approximately 328 acres total consisting of 4 parcels in the Name of Hazelwood Farms, LLC and are in the B-1 (General Business) and A-1 (General Agricultural) zoning district and all acreage being within the Primary Service Area with (PSA). The property is located on the Southern side of Interstate 64 and accessible along its eastern edge by Old Stage Road. A Rezoning is being sought to bring this site into the EO (Economic Opportunity) zoning district. The proposal includes for 3,220,000 square foot of Warehousing/Manufacturing/Office and 75,000 square feet of commercial. These uses may include such specialty uses as a fast-food restaurant, gas station, bank, truck terminal, heavy equipment sales, and other commercial buildings over 10,000sf.

An application to rezone the project from B-1 and A-1 to EO (Economic Opportunity Zoning District) with proffers is being sought to bring the property into conformance with county Comprehensive Plan.

Exhibit 1 – Location Map



VICINITY MAP
(Approximate Scale: 1"=2000')
Copyright ADC The Map People permitted use number 21004223

II. THE PROJECT TEAM

The organizations that participated in the preparation of the information provided in this impact study are as follows:

- Developer -Hazelwood Farms, LLC
- Legal -Kaufman & Canoles
- Land Planning -AES Consulting Engineers
- Civil Engineering -AES Consulting Engineers
- Environmental & Natural Resources -Kerr Environmental
- Traffic -DRW Consulting

III. PROJECT DESCRIPTION AND PLANNING CONSIDERATIONS

Project Description

The developer is proposing to rezone multiple parcels from B-1 and A-1 to EO for the purpose of developing a project to include warehousing, office, manufacturing and an Urban Core which may include retail/commercial and multifamily apartments on approximately 328 acres in the Stonehouse District in James City County.

Potential Special Permit Uses

- Multifamily apartments
- Any convenience stores
- Commercial in excess of 10,000 square feet of floor area
- Commercial that generates more than 100 additional trips during peak hour of operation
- Manufacture and processing of textile products in structures in excess of 10,000 square feet of floor area
- Truck terminals
- Heavy equipment/machinery sales and service

Planning Considerations

The Enterprise Center at Hazelwood Farm lies within the Primary Service Area (PSA) of the County and within an Economic Opportunity Zone in the JCC Comprehensive Plan. It is bounded to the East by Old Stage Road (US Rte. 30), which is identified by James City County as a Community Character Corridor.

The Primary Service Area (PSA) is an important planning tool within James City County and it encourages efficient use of public facilities and services, avoids overburdening such facilities and services, helps ensure facilities are available where and when needed, increases public benefit per dollar spent, promotes public health and safety through improved emergency response time, and minimizes well and septic failures. As this Site is within the PSA it has been identified as one where James City County has planned for growth with the knowledge that services can be brought to the site and that there is ample capacity in these systems to support this project.

The project frontage along Old Stage Road (US Rte. 30) is designated as an open/agricultural in the Community Character Corridor classification. It is the intent to enhance the character of this area of the County with the implementation of Design Guidelines that will help to frame the development within the proposed EO zone. The site is designated as Economic Opportunity on the Comprehensive Plan and is suitable for business development, physical attributes and density of the property being planned, and the degree of the project's consistency with the Comprehensive Plan.

IV. ANALYSIS OF IMPACTS TO PUBLIC FACILITIES AND SERVICES

The subject property of this rezoning application is located within the Primary Service Area of James City County. Identified on the zoning maps, the Primary Service Area is an area where urban development is encouraged to occur. Public water and public sanitary sewer services and other public services (police, fire and life rescue, and transportation) are presently provided or intended to be provided to these parcels.

A. Public Water Facilities

The subject property is not currently served by public water service. The site is within the Primary Service Area (PSA) and is intended to be served with public drinking water by the existing JCSA water distribution system. JCSA currently maintains a 12" water at the intersection of La Grange Parkway and Barhamsville Road (Route 30) at the entrance to Stonehouse Industrial Park. The developer will extend the water system along Barhamsville Road (Route 30) to intersect of Old Stage Road and Barhamsville Road. Depending on future growth and water system demands it is possible that additional system pressures will be required within the development. The developer agrees to reserve a 50-ft JCSA public utility easement to accommodate future looping of the water system under Interstate 64 should it be needed in the future as part of this development or as part of other expansions outside of this development in

the area.

The project's internal water system will likely consist of 12-inch water main through the project providing the project adequate volumes and pressures for consumption and fire protection. Verification the JCSA existing water system and design of the on-site water main extensions will be further analyzed with modeling techniques during development of construction plans for the project. Should additional volumes or pressure needs arise the developer shall interconnect the water system to Fieldstone Parkway on the opposite side of Interstate 64.

Water consumption for the proposed project is estimated at a Maximum Day Water Demand of 176,000 gallons per day. Peak Hour Water Demand for this project is estimated at approximately 531 gallons per minute.

TABLE 1 - PROJECTED WATER USAGE

Type of Use	Design Units	Flow (GPD/Unit)	Total Flow (GPD)	Duration (hrs)	Avg Flow (GPM)	Peak Flow (GPM)
Warehouse	3,220,000 SF	0.05	161,000	24	111.81	447.22
Shopping Center	75,000 SF	0.2	15,000	12	20.83	83.33
Multifamily	Units	310	-	24	0.00	0.00
Total			**176,000**		**132.64**	**530.56**

B. Public Sewer Facilities

This project is intended to include industrial, office park and commercial development such as retail shops, bank, restaurant, and a convenience store that will be located off of Old Stage Road (Route 30) in James City County, Virginia. The properties and buildings in the development are anticipated to be served by an on-site sewer pump station and an 8" force main that will connect to the existing JCSA maintained force main along Barhamsville Road before connecting to the HRSD force main system at La Grange Parkway which ultimately discharges to the Williamsburg Wastewater Treatment Plant. The estimated average daily flow generated from the proposed development is 176,000 gallons per day (GPD) with a peak flow rate of 398 gallons per minute (GPM). See Table 2 below for details of projected wastewater flows.

Table 2 – Wastewater Flows

Type of Use	Design Units	Flow (GPD/Unit)	Total Flow (GPD)	Duration (hrs)	Avg Flow (GPM)	Peak Flow (GPM)
Warehouse	3,220,000 SF	0.05	161,000	24	111.81	335.42
Shopping Center	75,000 SF	0.2	15,000	12	20.83	62.50
Multifamly	SF	7 310	-	24	0.00	0.00
Total			**176,000**		**132.64**	**397.92**

~~C. Public Schools~~

(Section Removed – no school children to be generated)

D. Fire Protection and Emergency Services

There are currently five fire stations providing fire protection and Emergency Medical Service (EMS) to James City County. Each station is placed within the County in such a way as to help achieve the response goal of six minutes or less. Every station is staffed by three shifts of career and volunteer Firefighters. Station crews are responsible for the pre-planning of target hazards in their area as well as safety inspections of private businesses within the response district

In addition, there exists a mutual aid agreement with the York County and City of Williamsburg for backup assistance. The location of the project allows for coverage by one of the county's five stations: James City County Station 1, located on Forge Road, York County Station 5, located on Newman Road, and the City of Williamsburg as a third backup all will be within reasonable response times of the project.

E. Solid Waste

The proposed development on the subject property will generate solid wastes that will require collection and disposal to promote a safe and healthy environment. Reputable, private contractors will handle the collection of solid waste. Both commercial trash and recyclable material will be removed from this site to a solid waste transfer station.

F. Franchise Utility Service Providers

Virginia Natural Gas, Dominion Enginery, Cox Communications, and Verizon Communications provide, respectively, natural gas, electricity, cable TV/ Internet service, and telephone service to this area. The current policy of these utility service providers is to extend service to new development at no cost to the developer when positive revenue is identified; plus, with new land development, these utility service providers are required to place all new utility service underground.

G. Parks and Recreation

This project proposes to provide dedicated open space with the Urban Core as part of the retail/commercial development. There are two loosely defined park areas within the Urban Core on the provided Master Plan. In addition, other passive amenities will include open spaces, sidewalks and pedestrian benches.

H. Transit

The Master Plan identifies a series of multiuse pedestrian and bike pathways throughout the development. Additionally, internal sidewalks will provide pedestrian interconnection between the development parcels along the main development access road. Additionally, public transit access will be made within the "Urban Core" shown on the Master Plan by Williamsburg Area Transit Authority (WATA). At least one bus stop is to be provided by the development as coordinated with WATA.

V. ANALYSIS OF ENVIRONMENTAL IMPACTS

An environmental inventory, wetland delineation, and perennial stream analysis has been prepared by the Kerr Environmental Group 4/15/15. The inventory is incorporated into the provided Master Plan for the development.

VI. ANALYSIS OF STORMWATER MANAGEMENT

A brief needs-analysis for stormwater management, meeting the general criteria of the Commonwealth of Virginia and James City County's stormwater requirements, was completed as a component of the planning for the proposed project. The goal of the stormwater management plan is to adhere to local and state stormwater requirements and provide a sustainable development utilizing the latest stormwater design techniques. In evaluating stormwater management solutions on the subject site, unique site characteristics were considered. Preliminary site investigation identified the following site characteristics to be considered in stormwater management planning:

- The property drains to an unnamed tributary of Diascund Creek watershed.
- The site is currently largely undeveloped; forested and in open fields.
- All of the project area's existing drainage is surface runoff, ultimately converging to the unnamed tributary of Diascund Creek, located in central and south east of the project site.
- This project collects uncontrolled runoff from adjacent properties and roadways including; Route 30, Barnes Road and Interstate 64.
- The project site largely consists of sloping of 0 to 6% slopes, with a few 0-10% slopes

and are well drained soils.

At this time the stormwater management approach has not been fully designed due to the lack of specific end users however it is anticipated that all the proposed development will be treated at the runoff source, adjacent to buildings and parking lots, through a series of bioretention cells or similar small-scale infiltration-based features. The stormwater management plan proposed for this site will protect overall downstream water quality, help preserve the natural hydrology of the watershed, and reduce the likelihood of the existing Interstate and Route 30 roadway drainage to cause downstream erosion to receiving channels through maintaining post-developed flows at or below pre-developed flows through on-site detention, and when and where feasible, through infiltration.

Stormwater is to be managed by a series of best management practices and pipe drainage networks that ultimately discharge into downstream wetlands. Upstream bioretention ponds, filterras, dry swales, and other low impact development measures will contribute to stormwater quality control and will feed into the downstream wet ponds for additional quality and quantity control. Downstream of these upstream features, it is envisioned that ponds will serve as the primary means of water quantity control. Per compliance with the Virginia Runoff Reduction Method (VRRM), all proposed site work will be managed by these stormwater measures to negate downstream wetlands impacts and pollution from entering into the Chesapeake Bay.

The main road network and infrastructure is anticipated to be designed and installed in advance of individual parcel development. The initial infrastructure plan will require the preparation of a stormwater master plan showing how the infrastructure plan and all installed stormwater features will be incorporated into the overall stormwater planning for the entire development. Future site development plans will need to show that they are in compliance with the stormwater master plan, comply with regulations on a standalone basis and/or update the previously approved master plan that show how the overall site remains in compliance with current and possible future stormwater regulations.

VII. ANALYSIS OF IMPACTS TO TRAFFIC

The traffic impacts for the proposed development have been addressed by DRW Consulting and is addressed within the Master plan.

VIII. ANALYSIS OF FISCAL IMPACTS

(Section Removed – No longer proposing residential)

IX. ANALYSIS OF CULTURAL RESOURCES IMPACTS

An Archaeological Assessment for James City County (Preserving Our Hidden Heritage); and, per the County's Archaeological Policy was prepared. A Phase I Cultural Resources Assessment prepared by Circa (October 2014) and the report is attached to this submittal.

X. ANALYSIS OF NATURAL RESOURCES IMPACTS

Rouse Environmental Services working on behalf of Kerr Environmental Group conducted an investigation of the site to review it for potential endangered wildlife and plant species. It was determined following an investigation that there were no such species or potential habitats deemed to be present on this property. A copy of their report is attached to this submittal.

XI. CONSTRUCTION PHASING

(Section Removed – No longer proposing residential)

XII. CONCLUSION

In summary, The Enterprise Center at Hazelwood Farm is being planned as an Economic Opportunity site to include manufacturing, warehousing, office, and commercial development within the EO District. Planning and redevelopment of the site incorporates open space design principles, respects the environmental sensitivity of the watershed and meets the intent of the Comprehensive Plan. The Community Impact Statement for The Enterprise Center at Hazelwood Farm development concludes that the County and the community realize the tangible public benefits of open space design, unusual environmental protection, significant fiscal benefits and the following:

- Adequate public facilities (water, sewer and fire), and utility services (gas, electric cable TV, telephone), are available for development
- The proposed use is consistent with the intended land use designated on the current Comprehensive Plan for this area
- There is adequate capacity in the system of roads serving this project with additional

roadway improvements scheduled to accommodate the future growth.

- The proposed stormwater management system will protect downstream channels from erosion and the onsite bioretention and dry swales will increase water infiltration and reduce uncontrolled runoff
- The development provides a significant tax benefit to the County
- The Master Plan and Design Guidelines proffered provide a high standard of architecture and layout to enhance this area of the County for decades to come

Ch. 527 Traffic Impact Statement For Village Center And Enterprise Center At Hazelwood Farms

JAMES CITY COUNTY, VIRGINIA

For:
Hazelwood Farms, LLC

By:
DRW Consultants, LLC
Midlothian, VA

January 2019

Ch. 527 Traffic Impact Statement For Village Center And Enterprise Center At Hazelwood Farms

JAMES CITY COUNTY, VIRGINIA

For:
Hazelwood Farms, LLC

By:
DRW Consultants, LLC
Midlothian, VA

COMMONWEALTH OF VIRGINIA
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January 2019

TABLE OF CONTENTS

REPORT TEXT Page

Introduction....1
Executive Summary....2
Background Information....5
- Site Locations & Description....5
- Study Area....5
- Existing Roadways....6
- Programmed Improvements....6
- Area Land Uses And Zoning....6
- Comprehensive Plan Recommendations....7
- Analysis Locations....7
- Current & Proposed Site Zoning....8
- Stonehouse Development Plan....8
- Moss Creek Development Plan....8
- Hazelwood Farms Proposed Development Plan....8
- Related VDOT Requirements....9

Existing Conditions....10
2030 Background Traffic Without Hazelwood Farms....14
Hazelwood Farms Trip Generation, Distribution And Assignment....17
Analysis 2030 Traffic With Hazelwood Farms....19
Moss Creek Trip Generation, Distribution And Assignment....22
Stonehouse Trip Generation, Distribution And Assignment....22
Analysis 2030 Traffic With All Development....23
- 70 Second Cycle....25
- 90 Second AM/100 Second Cycle....29

Summary And Conclusions....32

REPORT EXHIBITS Number

Regional And Area Map....1a
Area Parcel Map....1b
Peak Hour Count Locations....1c
Existing Roadway....1d
Existing Zoning....1e
JCC 2035 Land Use Map....1f
2034 Long Range Transportation Plan....1g
Peak Hour Analysis Locations....1h
Stonehouse Development Phasing Plan....1i
Moss Creek Master Plan....1j
Hazelwood Farms Map Index Sheet....2
Hazelwood Farms North Master Plan....2a
Hazelwood Farms North Access Plan – Rt. 30....2b
Hazelwood Farms South Master Plan....2c
Hazelwood Farms South Access Plan – Rt. 746 Old Stage Road....2d
Hazelwood Farms South Access Plan – Route 30 South....2e
Hazelwood Farms South Access Plan – Route 30 & I-64 EB Ramp A....2f

Route 30 Corridor 2g
2017 AM Peak Hour Traffic Counts 3a
2017 PM Peak Hour Traffic Counts 3b
2018 AM Peak Hour Traffic Counts 4a
2018 PM Peak Hour Traffic Counts 4b
2018 Daily Traffic, Sidewalks, Multi Use Paths, Transit 4c
2018 AM Traffic LOS 4d
2018 PM Traffic LOS 4e
2030 AM Peak Hour Background Traffic - Growth Factor Only 5a
2030 PM Peak Hour Background Traffic - Growth Factor Only 5b
2030 Background Growth Factor Daily Traffic, Sidewalks, Multi Use Paths, Transit 5c
2030 AM Peak Hour Level Of Service Growth Factor Only 5d
2030 PM Peak Hour Level Of Service Growth Factor Only 5e
Hazelwood Trip Generation And Distribution 6-1
Hazelwood North Trip Distribution Percentages Diagram 6-2
Hazelwood South Trip Distribution Percentages Diagram 6-3
Hazelwood North Internal Capture 6-4
Hazelwood South Internal Capture 6-5
Hazelwood AM Peak Hour Trips - 100% North & South 7a
Hazelwood PM Peak Hour Trips - 100% North & South 7b
All Hazelwoood Daily Traffic, Sidewalks, Multi Use Paths, Transit 7c
All Hazelwoood LOS 7d
2030 AM Peak Hour With Hazelwood Only 8a
2030 PM Peak Hour With Hazelwood Only 8b
2030 With Hazelwood Only Daily Traffic, Sidewalks, Multi Use Paths, Transit 8c
2030 With Hazelwood Only AM LOS 8d
2030 With Hazelwood Only PM LOS 8e
Moss Creek Trip Generation & Distribution 9
Moss Creek AM Peak Hour Traffic 9a
Moss Creek PM Peak Hour Traffic 9b
Moss Creek Daily Traffic, Sidewalks, Multi Use Paths, Transit 9c
Stonehouse AM Peak Hour Trips 10a
Stonehouse PM Peak Hour Trips 10b
2030 Total AM Peak Hour Traffic – ALL DEVELOPMENT 11a
2030 Total PM Peak Hour Traffic - ALL DEVELOPMENT 11b
2030 ALL DEVELOPMENT Daily Traffic, Sidewalks, Multi Use Paths, Transit 11c
2030 ALL DEVELOPMENT AM Peak Hour LOS – 70 Second Cycle 11d
2030 ALL DEVELOPMENT PM Peak Hour LOS – 70 Second Cycle 11e
2030 ALL DEVELOPMENT AM Peak Hour LOS – 90 Second Cycle 11f
2030 ALL DEVELOPMENT PM Peak Hour LOS – 100 Second Cycle 11g

REPORT TEXT

INTRODUCTION

Hazelwood Farms proposes to rezone their property at the I-64/Rt. 30 interchange in James City County. This traffic study is the second phase of study to address the requirements of VDOT Traffic Impact Analysis Regulations (24VAC30-155), commonly known as Chapter 527.

The first phase traffic study included complete background information as well as complete traffic counts and forecasts required for the study. It addressed only PM peak hour traffic analysis for buildout of the area and an evaluation of two Rt. 30 intersections pursuant to VDOT Roundabout Policy (Road Design Manual Appendix F). VDOT review of the first phase study acknowledged that roundabouts are not preferable for Rt. 30 locations and only traffic signals are included in this study.

This second phase study includes traffic signals on Rt. 30 and analysis of existing conditions, future conditions without and with Hazelwood Farms, and future conditions without and with Stonehouse and Moss Creek.

The approved Ch. 527 Pre-Scope of Work Meeting Form and the signed Scope of Work Meeting Checklist are included at the end of the Appendix. This study will also provide information to James City County for its consideration of the proposed rezoning.

EXECUTIVE SUMMARY

Hazelwood Farms location in the Hampton Roads region is shown on the upper section of Exhibit 1a. The lower section of Exhibit 1a shows the two sections of Hazelwood Farms:

1. North Hazelwood Farms (formally named Village Center at Hazelwood Farms): northwest quadrant of the I-64/Rt. 30 interchange. This area is referred to in planning documents as Village Center.
2. South Hazelwood Farms (formally named Enterprise Center at Hazelwood Farms): southwest quadrant of the I-64/Rt. 30 interchange. This area is referred to in planning documents as Enterprise Center.

The directional convention in this report is Rt. 30 runs north and south and I-64 runs east and west, and North Hazelwood Farms and South Hazelwood Farms nomenclature are used.

Exhibit 1b shows the Hazelwood Farms property location with on an area parcel map. I-64 and all other public roads are maintained by VDOT.

Rt. 30 is a minor arterial under VDOT functional classification in the area and has traffic in the 10,000 vehicles per day range. North Hazelwood Farm is anticipated to be developed with all access on Rt. 30 only.

Rt. 746 Old Stage Road is located on the west side of Rt. 30 and has daily traffic in the 1,000 vehicles per day range. South Hazelwood Farms frontage on Rt. 30 is a limited access line, and all property is anticipated to be developed with access on Rt. 746 Old Stage Road. (Note: part of Rt. 30 carries the name Old Stage Road, but the name Old Stage Road only applies to Rt. 746 in this report).

North Hazelwood Farms land use plan is shown on Exhibit 2a. Anticipated development consists of 135,000 square feet office (Area 1) and 375,000 square feet of retail space (Areas 2, 3 and 4). Depending on future conditions, the rear of the property (Area 4) may have less trip generation with alternative warehouse use.

Exhibit 2b shows the access plan for North Hazelwood Farms on Rt. 30. The major access (Entrance 1) will align across from Fieldstone Parkway at a signalized intersection with four-way access. Entrance 2 will have right turn in and out only access at approximately the current location of a crossover on Rt. 30. Per VDOT directive, the existing crossover is to be closed when Entrance 2 is constructed. All site access is anticipated to be VDOT commercial entrances with private internal access.

South Hazelwood Farms land use plan is shown on Exhibit 2c. Anticipated development consists of 2,920,000 square feet warehouse (Areas 1, 2, 4, and 5), 75,000 square feet of retail space (Area 3) and 300 apartments (Area 6).

Exhibit 2d shows the access plan for South Hazelwood Farms. All access for South Hazelwood Farms is on Old Stage Road. The proposed access road (Entrance 1) will be the primary entrance and is planned to be a VDOT subdivision street. Entrance 2 will be the secondary entrance closest to Rt. 30 and is anticipated to be a commercial entrance. Both entrances are proposed to be constructed with single lane roundabouts on Old Stage Road. Roundabouts are a recommended design when left turns are a substantial part of traffic (as is the case here). Access includes reconstruction of Old Stage Road with raised median and added lanes and a traffic signal at the Rt. 30/Old Stage intersection.

The raised median on Old Stage Road will block existing left turns at the Shell Station and McDonald's entrances. The roundabout at Entrance 2 also serves to accommodate U-turns for existing left turn entering the Shell Station and McDonald's entrances.

The Rt. 30 corridor also serves as primary access for two other developments: Stonehouse and Moss Creek shopping center.

Exhibit 1i shows the Stonehouse phasing plan included with the Timmons Group traffic study for Stonehouse in 2015. That study included full development of Phase 1 and 2 and that Stonehouse traffic is included in this study. On Rt. 30, Stonehouse has two access points:

1. Fieldstone Parkway north of I-64 across from North Hazelwood Farms serves the generally residential area of Stonehouse.
2. LaGrange Parkway south of I-64 and Old Stage Road serving Hazelwood Farms the generally warehouse area of Stonehouse.

Exhibit 1j shows the Moss Creek master plan by LandMark from 2006. Trip generation for Moss Creek is included in this study. Moss Creek has two access points:

1. Moss Creek #1 entrance on Rt. 30 with full access and traffic signal.
2. Moss Creek #2 entrance on Fieldstone Parkway with full access.

Development improvements to the Rt. 30 corridor within the study are included at the following intersections from north to south (see Exhibit 2g for reference):

1. Moss Creek #1 Entrance #1 (Station 303+86). Extend 2nd northbound through lane from Fieldstone to drop off right turn at MC1. Widen for southbound left turn lane. Add traffic signal. All work by Moss Creek development.
2. Fieldstone Parkway/North #1 Entrance (Station 313+06). For Stonehouse, future signalization is required with second westbound left turn lane. For North Hazelwood Farms, signalization also required with northbound double left turn lanes, southbound right turn lane, and four eastbound lanes: double left turn lanes, through lane and right turn lane. See Exhibit 2b for details.
3. North #2 Entrance (Station 321+35). Close crossover and add southbound right turn lane. Right turn in/out only. All work by Hazelwood Farms.
4. I-64 Westbound Ramps B & C (Station 337+23). Westbound double left turn lanes and northbound double left turn lanes with signal proffered by Stonehouse. Only signalization required by Hazelwood Farms.
5. I-64 Eastbound Off Ramp A (Station 350+36). Signal addition by North Hazelwood Farms. See Exhibit 2f.
6. I-64 Eastbound On Ramp D (Station 353+47). Extend northbound right turn lane back to Old Stage Road intersection as drop-off lane by South Hazelwood Farms. See Exhibit 2f.
7. Old Stage Road (Station 359+58). South Hazelwood Farms improvements include (see Exhibit 2e):
    a. Four lanes on Old Stage Road eastbound approach: double left turn lanes, through lane and right turn lane.
    b. Two lanes on westbound approach.
    c. Double left turn lane on northbound approach.

d. Add third through lane on northbound approach (Note: this improvement is required for all development traffic, but not required for Hazelwood Farms only.
e. Extend southbound right turn lane back to Ramp A as drop-off lane at Old Stage Road.
f. Add signal.

Traffic analysis for the signalized intersection have been performed for all development build out conditions on the Rt. 30 corridor for the 2030 PM peak hour forecast year. This includes analysis with 70 second cycle lengths used in the 2015 Timmons Group traffic study as well as 90 (AM) and 100 (PM) second cycle lengths. All signalized intersections have overall LOS C or better for all development scenarios and traffic signal cycle lengths.

BACKGROUND INFORMATION

Site Location And Description

Hazelwood Farms site location in the Hampton Roads region is shown on the upper section of Exhibit 1a. The site is located in northern James City County at the I-64 and Rt. 30 interchange (Note: The directional convention in this report is Rt. 30 runs north and south and I-64 runs east and west).

Hazelwood Farms property location with respect to area roads is shown on the lower portion of Exhibit 1a. I-64 and all other public roads are maintained by VDOT. North Hazelwood Farms is in the northwest quadrant of the I-64/Rt. 30 interchange. South Hazelwood Farms is located in the southwest quadrant of the I-64/Rt. 30 interchange.

Exhibit 1b shows Hazelwood Farms property on the county parcel map. Please note the name Old Stage Road includes Rt. 746 as well as Rt. 30 north of Rt. 746. For this report, all of Rt. 30 is referred to as Rt. 30 and Rt. 746 is referred to as Old Stage Road.

The property's land use is now farm and woodlands. General terrain in the area is level plains divided by drainage ravines and wetlands.

Study Area

Weekday AM and PM peak hours have been confirmed with VDOT and James City County for counts and analysis for inclusion in this report.

The existing intersections confirmed with VDOT and James City County for weekday AM and PM peak hour counts and analysis for inclusion in this report are shown on Exhibit 1c as follows:

1. Rt. 30/Barnes Road
2. Rt. 30/Fieldstone Parkway
3. Rt. 30/Overpass Road (count and forecast only)
4. Rt. 30/I-64 westbound ramps
5. Rt. 30/I-64 eastbound ramps
6. Rt. 30/Old Stage Road
7. Old Stage Road/Shell Station entrance (count and forecast only)
8. Old Stage Road/McDonalds entrance (count and forecast only)

All of these intersections are unsignalized.

The I-64/Route 30 interchange ramp junction merges and diverges confirmed with VDOT and James City County for weekday AM and PM peak hour counts and analysis are shown on Exhibit 1c (light blue lettering) as follows:

- Diverge 1 (D1): Eastbound Ramp A Diverge
- Diverge 2 (D2): Westbound Ramp C Diverge
- Merge 1 (M1): Westbound Ramp B Merge
- Merge 2 (M2): Eastbound Loop A Merge
- Merge 3 (M3): Eastbound Ramp D Merge

Peak hour counts are tabulated in the Appendix Exhibit A series.

Existing Roadways

The study area existing intersections, ramp junctions and roads are shown on a road network diagram on Exhibit 1d. Existing lane configurations at the intersections are also shown.

Rt. 30 is a four-lane divided median highway south of Fieldstone Parkway. Rt. 30 tapers to a two-lane road north of Fieldstone Parkway at Barnes Road. The road is posted 55 mph throughout the study area. Rt. 30 is the key arterial in the area and has traffic in the 10,000+ vehicle per day range.

Exhibit 1d shows the existing intersections (all unsignalized) from north to south on Rt. 30 as follows:

1. Rt. 30/Barnes Road. Barnes Road and Rt. 30 are two lane roads without auxiliary lanes. Barnes Road is stop sign controlled.
2. Rt. 30/Fieldstone Parkway. Rt. 30 is four lane divided highway with crossover at Fieldstone Parkway. Fieldstone Parkway is a four-lane divided highway and is stop controlled with left and right turn lanes as shown.
3. Rt. 30/Overpass Road. Rt. 30 is four lane divided highway with crossover at Overpass Road (a dead-end state frontage road).
4. Rt. 30/I-64 Westbound Exit Ramp C & On Ramp B. Rt. 30 is four lane divided highway with crossover at the I-64 westbound ramps. Exit Ramp C has a stop controlled left turn lane at Rt. 30 and a channelized right turn with acceleration lane to northbound Rt. 30. There is a northbound left turn lane.
5. Rt. 30/I-64 Eastbound Exit Ramp A. Rt. 30 is four lane divided highway with crossover at the I-64 eastbound ramp. Exit Ramp A has a stop controlled left turn lane at Rt. 30 and a channelized right turn with acceleration lane to southbound Rt. 30.
6. Rt. 30/Old Stage Road. Rt. 30 is four lane divided highway with crossover at Old Stage Road. Eastbound Old Stage Road and westbound C-store are two lane roads with stop-controlled approaches to Rt. 30. Auxiliary lanes on Rt. 30 are shown.

On Old Stage Road, the Shell Station and McDonald's entrances are combined for simplicity of forecast.

I-64/Rt. 30 is a diamond interchange with the single loop A in the southwest quadrant.

Programmed Improvements

There are no programmed improvements in the area.

Area Land Uses And Zoning

See Exhibit 1e for zoning in the area. North Hazelwood Farms property is all zoned B1 General Business. South Hazelwood Farms is zoned A1 Agriculture and B1 General Business.

There are two convenience stores with gas and the McDonald's at the Rt. 30/Old Stage Road intersection. These are within existing B1 zoning that includes part of South Hazelwood Farms.

Stonehouse east of North Hazelwood Farms and Rt. 30 is zoned PUD-C and PUD-R. It is developed primarily as residential in this area. Moss Creek east of North Hazelwood Farms is zoned MU Mixed Use and is vacant.

Much of the area north, west and south of Hazelwood Farms is zoned A1 Agriculture.

Comprehensive Plan Recommendations

Exhibit 1f shows the JCC 2035 Comprehensive Plan Land Use Map for this area. North Hazelwood Farms (proposed SUP) is consistent with the Mixed Use designation and South Hazelwood Farms (proposed EO zoning) is consistent with the Economic Opportunity designation.

Exhibit 1g-1 shows Map 8 of the James City/York Transportation Study prepared by the Hampton Roads TPO in March 2012. The only improvement shown in the vicinity of Hazelwood Farms is the widening of I-64.

Exhibit 1g-2 shows Hampton Roads 2040 Long Range Transportation Plan. There are no Regional Priority Projects shown in the vicinity of Hazelwood Farms.

Enclosed Exhibit 1g-3 shows the Regional Bikeway Plan for this area.

Enclosed Exhibit 1g-4 shows the JCC Pedestrian Accommodation Master Plan for this area.

The proposed development is consistent with/not in conflict with any comprehensive plan for roads.

Analysis Locations

Exhibit 1h shows the intersection analysis locations with future analysis conditions for build out of all development as follows:

1. Rt. 30/Barnes Road. Unsignalized.
2. Rt. 30/Moss Creek Entrance 1. Signalized.
3. Rt. 30/North #1 Entrance/Fieldstone Parkway. Signalized.
4. Rt. 30/North #2 Entrance. Right turn in and out with Rt. 30 crossover closed.
5. Rt. 30/I-64 Westbound Exit Ramp C & On Ramp B. Signalized.
6. Rt. 30/I-64 Eastbound Exit Ramp A. Signalized Vs. Roundabout.
7. Rt. 30/Old Stage Road. Signalized Vs. Roundabout.
8. Old Stage Road/South #2 Entrance. Roundabout.
9. Old Stage Road/South #1 Entrance. Roundabout.

Exhibit 1h also shows the I-64 ramp junction analysis locations as follows:

- Diverge 1 (D1): Eastbound Ramp A Diverge
- Diverge 2 (D2): Westbound Ramp C Diverge
- Merge 1 (M1): Westbound Ramp B Merge
- Merge 2 (M2): Eastbound Loop A Merge
- Merge 3 (M3): Eastbound Ramp D Merge

Current And Proposed Site Zoning

Hazelwood Farms is comprised of approximately 407 acres of land currently zoned A1 and B1. Rezoning by James City County is required to allow proposed uses.

The following table shows the conceptual development inventory:

TABLE A – PROPOSED REZONING FOR HAZELWOOD FARMS

	Rezoning Area	Acres	Units		
North	B1 to B1 w/Special Use Permit	79	Retail	375,000	sq. ft.
			Office	135,000	sq. ft.
South	A1 & B1 to EO	328	Warehousing	2,920,000	sq. ft.
			Retail	75,000	sq. ft.
			Apartments	300	units

Stonehouse Development Plan

The 2017 Stonehouse Development Phasing Plan prepared by Timmons Group is shown on Exhibit 1i. Timmons Group also did a traffic analysis dated April 16, 2015 that included forecast and analysis for Phases 1 and 2 on the phasing plan. The 2015 zoning addressed only Phases 1 and 2 for traffic impact and proffers.

On Rt. 30, Stonehouse has two access points:

1. Fieldstone Parkway north of I-64 across from North Hazelwood Farms serves the generally residential area of Stonehouse.
2. LaGrange Parkway south of I-64 and Old Stage Road serves the generally warehouse area of Stonehouse.

April 20, 2015 proffers include:

1. traffic signal and pavement markings to add second westbound left turn lane at Rt. 30/Fieldstone Parkway
2. traffic signal and second westbound left turn lane at Rt. 30/westbound I-64 ramps
3. second left turn lane on northbound Rt. 30 at westbound I-64 ramps

Moss Creek Development Plan

Exhibit 1j shows the Moss Creek master plan by LandMark from 2006. Trip generation for Moss Creek is included in this study. Moss Creek has two access points:

1. Moss Creek #1 entrance on Rt. 30 with full access and traffic signal.
2. Moss Creek #2 entrance on Fieldstone Parkway with full access.

Hazelwood Farms Proposed Development Plan

North Hazelwood Farms land use plan is shown on Exhibit 2a. Anticipated development consists of 135,000 square feet office (Area 1) and 375,000 square feet of retail space (Areas

2, 3 and 4). Depending on future conditions, the rear of the property (Area 4) may have less trip generation with alternative warehouse use.

Exhibit 2b shows the access plan for North Hazelwood Farms on Rt. 30. The major access (Entrance 1) will align across from Fieldstone Parkway at a signalized intersection with four-way access. Entrance 2 will have right turn in and out only access at approximately the current location of a crossover on Rt. 30. Per VDOT directive, the existing crossover is to be closed when Entrance 2 is constructed. All site access is anticipated to be VDOT commercial entrances with private road internal circulation.

South Hazelwood Farms land use plan is shown on Exhibit 2c. Anticipated development consists of 2,920,000 square feet warehouse (Areas 1, 2, 4, and 5), 75,000 square feet of retail space (Area 3) and 300 apartments (Area 6).

Exhibit 2d shows the access plan for South Hazelwood Farms. All access for South Hazelwood Farms is on Old Stage Road. The proposed access road (Entrance 1) will be the primary entrance. Entrance 2 will be the secondary entrance closest to Rt. 30. Both entrances are proposed to be constructed with single lane roundabouts. Roundabouts are a recommended design when left turns are a substantial part of traffic (as is the case here). Access includes reconstruction of Old Stage Road with raised median and added lanes and a traffic signal at the Rt. 30/Old Stage intersection, which is the gateway for South Hazelwood Farms.

The raised median on Old Stage Road will block existing left turns at the Shell Station and McDonald's entrances. The roundabout at Entrance 2 also serves to accommodate U-turns for existing left turn entering the Shell Station and McDonald's entrances.

Related VDOT Requirements

Change In Limited Access. Reconstruction of Old Stage Road will require adjustment of the limited access line on Rt. 30 north of Old Stage Road. At Rt. 30, the Old Stage Road reconstruction will add approximately 50 feet of pavement on the Hazelwood Farms side of Old Stage Road. This will require moving the end of the limited access line back toward I-64 50 to 75 feet depending on final design details. Commonwealth Transportation Board approval for this limited access change will be required with approval of plans for widening Old Stage Road.

Secondary Street Acceptance Regulations (SSAR). The cul-de-sac of the proposed public road in South Hazelwood Farms is not permitted by right under SSAR: at least two connections are required. An exception request for VDOT to allow the cul-de-sac has been included with this study for concurrent VDOT review. The basis for the exception is incompatible land use.

Access Management Regulations (AMR) & Signal Justification Report (SJR). Any AMR and SJR approval that may be required will be addressed prior to site approval by conditions for North Hazelwood Farms and proffers for South Hazelwood Farms.

EXISTING CONDITIONS

2017 TRAFFIC COUNTS

Weekday AM and PM peak hour turning movement counts and machine counts were conducted in January 2017. Tabulated traffic counts are in the Technical Appendix Exhibit A series. 2017 AM and PM peak hour counts with balance are shown on Exhibits 3a and 3b.

2018 TRAFFIC

For existing conditions, 2017 counts have been increased to 2018 levels based on growth factors. Exhibit 4a and 4b respectively show 2018 weekday AM and PM peak hour traffic volumes using a 1.1% increase in Rt. 30 traffic over 2017 counts and a 1.2% increase in I-64 traffic over 2017 counts. These growth factors were stipulated in the Ch. 527 Pre-Scope of Work Meeting Form.

Available VDOT daily counts are shown on Exhibit 4c. Exhibit 4c also shows calculated daily counts which have been developed by applying area road k-factors (ratio of peak hour traffic to daily traffic) to PM peak hour counts to calculate daily traffic.

EXISTING PEDESTRIAN/BICYCLE/TRANSIT FACILITIES

Exhibit 4c shows the existing bicycle/pedestrian facilities in the area. The only multi-use path is on Fieldstone Parkway and at Rt. 30. These were built by Stonehouse. There are no other sidewalks or multi-use paths in the area.

There is no transit service in the area. The closest WATA route has a turnaround end on LaGrange Parkway to the south on Rt. 30.

INTERSECTION TRAFFIC ANALYSIS PROCEDURES

Synchro 10 has been used to calculate traffic level of service (LOS) at signalized and unsignalized intersections. 95th percentile Synchro queuing reports and SimTraffic Queuing and Blocking reports are also included. SimTraffic queuing includes average of five simulations per recommended procedures for 95th percentile interval simulations.

The following table describes the six different LOS letter grades for signalized intersections from the Highway Capacity Manual 6th Edition (HCM6):

TABLE B - SIGNALIZED INTERSECTION TRAFFIC LEVELS OF SERVICE

Level Of Service (LOS)	Stopped Delay Per Vehicle (seconds)	Description
A	≤10.0	Low delay. Many vehicles do not stop.
B	>10 - 20	More stopping vehicles than LOS A.
C	>20 - 35	Longer cycle length. Stopping vehicles significant.
D	>35 - 55	Congestion more noticeable. Many vehicles stop.
E	>55 - 80	Long cycle lengths. High delay
F	>80	Considered in excess of acceptable delay.

The following table presents the six different LOS letter grades for unsignalized intersections from HCM6:

TABLE C – UNSIGNALIZED AND ROUNDABOUT INTERSECTION TRAFFIC LEVELS OF SERVICE

Level Of Service (LOS)	Stopped Delay Per Vehicle (seconds)
A	0-10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

It should be noted that HCM6 also defines LOS F as having a volume/capacity (v/c) ratio of greater than 1.0.

RT. 30/FIELDSTONE PARKWAY- 2018

The following table shows unsignalized intersection LOS results at Rt. 30/Fieldstone Parkway:

TABLE 1-1 Rt. 30/FIELDSTONE PARKWAY
2018 UNSIGNALIZED

SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage Length	Synchro		SimTraffic Q&B	
						AM	PM	AM	PM
WBL	B	14.6	C	19.6		28	25	305	94
WBR	A	9.2	B	11.4		3	3	29	8
SBL	A	8.2	A	9.7	150	0	3	9	7

All lanes have LOS C or better. Queueing on the southbound left turn lane on Rt. 30 at Fieldstone is well within storage.

RT. 30/I-64 WESTBOUND RAMPS - 2018

The following table shows unsignalized intersection LOS results at Rt. 30/I-64 westbound ramps:

TABLE 1-2 Rt. 30/I-64 WESTBOUND RAMPS
2018 UNSIGNALIZED

SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage Length	Synchro		SimTraffic Q&B	
						AM	PM	AM	PM
WBL	C	15.4	C	19.3		18	28	109	79
NBL	B	10.9	A	8.6	200	15	10	74	55

All lanes have LOS C or better. Queuing on northbound Rt. 30 at the westbound ramps is well within storage.

RT. 30/I-64 EASTBOUND RAMP A - 2018

The following table shows unsignalized intersection LOS results at Rt. 30/I-64 eastbound off ramp:

TABLE 1-3 Rt. 30/I-64 EASTBOUND RAMP 2018 UNSIGNALIZED									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage Length	Synchro		SimTraffic Q&B	
						AM	PM	AM	PM
EBL	B	12.1	B	11.8		3	8	35	52

All lanes have LOS B or better.

RT. 30/OLD STAGE ROAD - 2018

The following table shows unsignalized intersection LOS results at Rt. 30/Rt. 746 Old Stage Road:

TABLE 1-4 Rt. 30/OLD STAGE ROAD 2018 UNSIGNALIZED									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage Length	Synchro		SimTraffic Q&B	
						AM	PM	AM	PM
EBL/T/R	C	18.2	C	19.3		23	23	70	90
WBL/T/R	B	12.1	B	14.5		20	33	90	87
NBL	A	9.7	A	8.2	200	3	5	30	33
SBL	A	8.2	A	9.3	200	5	5	30	24

All lanes have LOS C or better. Queuing on the northbound and southbound left turn lanes on Rt. 30 are well within storage.

RT. 30/BARNES ROAD - 2018

The following table shows unsignalized intersection LOS results at Rt. 30/Barnes Road:

TABLE 1-5 RT. 30/BARNES ROAD 2018 UNSIGNALIZED									
UNSIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage Length	HCM 6th		SimTraffic Q&B	
						AM	PM	AM	PM
EBL/R	C	19.4	C	20.6		30	15	74	56
NBL/T	A	9.5	A	8.5		3	5	56	105

All lanes have LOS C or better.

I-64 RAMP MERGES/DIVERGES - 2018

The following table shows I-64 ramp merge and diverge LOS:

TABLE 1-6 I-64/RT. 30 RAMPS MERGE/DIVERGE 2018				
LOS And Passenger Cars Per Mile Per Lane				
	AM		PM	
I-64 Eastbound Ramp A Diverge	B	12.0	B	12.3
I-64 Eastbound Loop A Merge	B	14.4	B	12.3
I-64 Westbound Ramp B Merge	B	12.3	B	12.1
I-64 Westbound Ramp C Diverge	B	12.1	B	11.8
I-64 Eastbound Ramp D Merge	B	16.5	B	14.2

All merge/diverge movements have LOS B or better.

SUMMARY COMMENTS - 2018

All intersections and ramp merge/diverge movements have LOS C or better with intersection auxiliary lane queuing within storage limits. Exhibits 4d and 4e show LOS results on the network diagram.

2030 BACKGROUND TRAFFIC FORECAST WITHOUT HAZELWOOD FARMS

The forecast analysis year used in this study is 2030 as stipulated in the Ch. 527 Pre-Scope of Work Meeting Form.

2030 PEAK HOUR FORECAST

Background traffic growth factors were stipulated Ch. 527 Pre-Scope of Work Meeting Form. A 1.14 growth factor is applied to all 2017 peak hour traffic counts on Rt. 30. A 1.16 growth factor is applied to I-64. The resulting 2030 background traffic forecast is shown on Exhibits 5a and 5b for the weekday AM and PM peak hours, respectively.

Exhibit 5c shows calculated 2030 daily background traffic calculated from 2030 PM peak hour traffic with k-factors.

2030 PEDESTRIAN AND BICYCLE FACILITIES

There are no planned additions to pedestrian, bicycle or transit facilities. The facilities shown on Exhibit 5c are the same as existing.

RT. 30/FIELDSTONE PARKWAY- 2030 BACKGROUND

The following table shows unsignalized intersection LOS results at Rt. 30/Fieldstone Parkway:

TABLE 2-1 Rt. 30/FIELDSTONE PARKWAY 2030 BACKGROUND UNSIGNALIZED									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage Length	Synchro		SimTraffic Q&B	
						AM	PM	AM	PM
WBL	C	15.1	C	21.8		33	28		
WBR	A	9.3	B	11.8		3	3		
SBL	A	8.2	B	10.1	150	0	3		

All lanes have LOS C or better. Queueing on the southbound left turn lane on Rt. 30 at Fieldstone is well within storage.

RT. 30/I-64 WESTBOUND RAMPS - 2030 BACKGROUND

The following table shows unsignalized intersection LOS results at Rt. 30/I-64 westbound ramps:

TABLE 2-2 Rt. 30/I-64 WESTBOUND RAMPS 2030 BACKGROUND UNSIGNALIZED									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage Length	Synchro		SimTraffic Q&B	
						AM	PM	AM	PM
WBL	C	16.0	C	20.0		20	23		
NBL	B	11.3	A	8.8	200	15	10		

All lanes have LOS C or better. Queuing on northbound Rt. 30 at the westbound ramps is well within storage.

RT. 30/I-64 EASTBOUND RAMP A - 2030 BACKGROUND

The following table shows unsignalized intersection LOS results at Rt. 30/I-64 eastbound off ramp:

TABLE 2-3 Rt. 30/I-64 EASTBOUND RAMP 2030 BACKGROUND UNSIGNALIZED									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
					Length	AM	PM	AM	PM
EBL	B	12.3	B	12.0		3	10		

All lanes have LOS B or better.

RT. 30/OLD STAGE ROAD - 2030 BACKGROUND

The following table shows unsignalized intersection LOS results at Rt. 30/Rt. 746 Old Stage Road:

TABLE 2-4 Rt. 30/OLD STAGE ROAD 2030 BACKGROUND UNSIGNALIZED									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
					Length	AM	PM	AM	PM
EBL/T/R	C	18.1	C	20.4		20	25		
WBL/T/R	B	12.0	B	14.4		18	25		
NBL	A	8.7	A	9.5	200	5	5		
SBL	A	8.3	A	8.3	200	3	5		

All lanes have LOS C or better. Queuing on the northbound and southbound left turn lanes on Rt. 30 are well within storage.

RT. 30/BARNES ROAD - 2030 BACKGROUND

The following table shows unsignalized intersection LOS results at Rt. 30/Barnes Road:

TABLE 2-5 RT. 30/BARNES ROAD 2030 BACKGROUND UNSIGNALIZED									
UNSIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	HCM 6th		SimTraffic Q&B	
					Length	AM	PM	AM	PM
EBL/R	C	19.9	C	22.5		30	18		
NBL/T	A	9.6	A	8.5		3	5		

All lanes have LOS C or better.

I-64 RAMP MERGES/DIVERGES - 2030 BACKGROUND

The following table shows I-64 ramp merge and diverge LOS:

TABLE 2-6 I-64/RT. 30 RAMPS MERGE/DIVERGE 2030 BACKGROUND				
LOS And Passenger Cars Per Mile Per Lane				
	AM		PM	
I-64 Eastbound Ramp A Diverge	B	12.9	B	14.8
I-64 Eastbound Loop A Merge	B	15.6	B	14.9
I-64 Westbound Ramp B Merge	B	13.2	B	14.8
I-64 Westbound Ramp C Diverge	B	12.9	B	14.8
I-64 Eastbound Ramp D Merge	B	17.4	B	16.6

All merge/diverge movements have LOS B or better.

SUMMARY COMMENTS - 2030 BACKGROUND

All intersections and ramp merge/diverge movements have LOS C or better with intersection auxiliary lane queuing within storage limits. Exhibits 5d and 5e show LOS results on the network diagram.

HAZELWOOD FARMS TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT

Trip generation for Hazelwood Farms has been calculated using Trip Generation Manual, 10th Edition (TGM10), published by the Institute of Transportation Engineers (ITE).

The development includes the following anticipated uses and estimated sizes:

TABLE D – PROPOSED REZONING FOR HAZELWOOD FARMS

	Acres	Units		
North	79	Shopping Center	375,000	sq. ft.
		Office	135,000	sq. ft.
South	328	Warehousing	2,920,000	sq. ft.
		Shopping Center	75,000	sq. ft.
		Apartments	300	units

Exhibit 6-1 shows trip generation for Hazelwood Farms as follows:

- Table 1 shows trip generation for North Hazelwood Farms. Internal capture percentage is calculated on Exhibit 6-4 and applied to total trips in Table 1 to show internal trips. % pass by trips for the shopping center are calculated using the equation in the Trip Generation Manual Handbook and the pass by trip percentage is applied to total trips to calculate pass by trips. Primary trips are total trips remaining after internal capture and pass by trip reductions.
- Table 4 shows trip generation for South Hazelwood Farms. Internal capture percentage is calculated on Exhibit 6-5 and applied to total trips in Table 4 to show internal trips. % pass by trips for the shopping center are calculated using the equation in the Trip Generation Manual Handbook and the pass by trip percentage is applied to total trips to calculate pass by trips. Primary trips are total trip remaining after internal capture and pass by trip reductions.

Primary trip distribution for Hazelwood Farms trips was derived from trip distribution in the 2015 Stonehouse study by Timmons Group and counts. Trip distribution percentages for North Hazelwood Farms are shown on the road network on Exhibit 6-2 and for South Hazelwood Farms on Exhibit 6-3. These trip distribution percentages were stipulated in the Ch. 527 Pre-Scope of Work Meeting Form.

North Hazelwood Farms primary trip distribution is tabulated in Table 2 on Exhibit 6-1. Primary trips are assigned in Appendix Exhibits I5 and I6. North Hazelwood Farms pass by trip distribution is tabulated in Table 3 on Exhibit 6-1 based on background traffic. Pass by trips are assigned in Appendix Exhibit I7 and I8.

South Hazelwood Farms primary trip distribution is tabulated in Table 5 on Exhibit 6-1. Primary trips are assigned in Appendix Exhibits I9 and I10. South Hazelwood Farms pass by trip distribution is tabulated in Table 6 on Exhibit 6-1 based on background traffic. Pass by trips are assigned in Appendix Exhibit I11 and I12.

North and South Hazelwood Farms off site trips are shown on Exhibit 7a for the AM peak hour, Exhibit 7b for the PM peak hour, and Exhibit 7c for daily traffic.

OLD STAGE ROAD TRIP DIVERSIONS

The raised median on Old Stage Road to be constructed with South Hazelwood Farms access will change the route for trips using the McDonald's and Shell Station entrances on Old Stage Road. Appendix Exhibits E1 and E2 respectively show AM and PM diversion of these trips. Appendix Exhibits E3 and E4 respectively show 2030 AM and PM peak hour traffic with diversion of these trips

HAZELWOOD FARMS TRUCK TRIPS

15% trucks are assumed for the warehouse component of South Hazelwood Farms. All other uses are assumed to have 2% trucks.

Appendix Exhibits E5 and E6 show truck trip assignments for North Hazelwood Farms.

Appendix Exhibit 6-1 shows the calculation of truck trips for South Hazelwood Farms. 15% trucks are calculated for warehousing and 2% for other uses in Table 2. Table 5 shows tabulated trip distribution and Appendix Exhibit E7 and E8 respectively show AM and PM truck trip assignments for South Hazelwood Farms.

HAZELWOOD FARMS PEDESTRIAN AND BICYCLE FACILITIES

Exhibit 2a shows a multi-use path along the North Hazelwood Farms Rt. 30 frontage as part the master plan. Exhibit 2c shows multi-use paths as part of the South Hazelwood Farms frontage on Old Stage Road from Rt. 30 to Leisure Road and on the South Entrance #1 access road.

Exhibit 7c shows the multi-use paths and a pedestrian connection across Rt. 30 north of Fieldstone Parkway. A pedestrian connection north of Fieldstone Parkway is preferable to south of Fieldstone Parkway because north of Fieldstone Parkway has 10,000 fewer vehicles per day than south of Fieldstone Parkway. North of Fieldstone Parkway also aligns with a multi-use path to be built by Moss Creek along the north side of Fieldstone Parkway (see Exhibits 1j and 11c).

ANALYSIS OF 2030 TRAFFIC WITH HAZELWOOD FARMS

Total 2030 AM peak hour traffic with Hazelwood Farms is shown on Exhibit 8a. Total 2030 PM peak hour traffic with Hazelwood Farms is shown on Exhibit 8b. 2030 daily traffic with Hazelwood Farms is shown on Exhibit 8c.

RT. 30/FIELDSTONE PARKWAY- 2030 WITH HAZELWOOD FARMS

The following table shows signalized intersection LOS results at Rt. 30/Fieldstone Parkway:

TABLE 3-1 Rt. 30/FIELDSTONE PARKWAY
2030 HAZELWOOD ONLY 70 SECOND CYCLE

SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	C	23.8	C	20.3	Length	AM	PM	AM	PM
EBL2	C	29.8	C	23.4	150	20	91	36	202
EBT	C	29.7	C	28.9		5	28	8	64
EBR	C	20.6	B	13.6	200	0	82	83	246
WBL	C	32.2	C	27.3	250	117	65	155	89
WBT/R	C	26.3	C	34.8		19	22	43	44
NBL2	C	24.8	C	22.3	300	55	209	125	315
NBT2	B	10.6	B	15.5		67	169	130	406
NBR	B	11.3	B	17.4	350	0	9	0	0
SBL	B	15.7	C	23.7	150	11	18	64	42
SBT2	C	28.2	C	30.5		342	127	289	133
SBR	B	16.5	C	23.4	200	0	0	83	65

SimTraffic queue shown is maximum report value for multi-lane groups

Overall intersection LOS and all lane groups are LOS C or better.

RT. 30/I-64 WESTBOUND RAMPS - 2030 WITH HAZELWOOD FARMS

The following table shows signalized intersection LOS results at Rt. 30/I-64 westbound ramps:

TABLE 3-2 Rt. 30/I-64 WESTBOUND RAMPS
2030 HAZELWOOD ONLY 70 SECOND CYCLE

SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	B	12.2	B	11.9	Length	AM	PM	AM	PM
WBL	C	32.8	C	34.6		137	107	120	109
NBL	C	35.0	C	25.9	200	138	143	117	183
NBT2	A	6.8	A	6.8		71	209	100	134
SBT2	A	8.0	B	13.0		94	194	433	215
SBR	A	0.0	A	0.2	300	0	0	163	0

SimTraffic queue shown is maximum report value for multi-lane groups

Overall intersection LOS is LOS B and all lane groups are LOS C or better.

RT. 30/I-64 EASTBOUND RAMP A - 2030 WITH HAZELWOOD FARMS

The following table shows signalized intersection LOS results at Rt. 30/I-64 eastbound ramp A:

TABLE 3-3 Rt. 30/I-64 EASTBOUND RAMP 2030 HAZELWOOD ONLY 70 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	A	3.2	A	5.3	Length	AM	PM	AM	PM
EBL	C	30.9	C	29.1		84	129	134	153
NBT2	A	0.7	A	2.0		5	18	57	78
SBT2	A	0.3	A	2.6		0	29	120	72

SimTraffic queue shown is maximum report value for multi-lane groups

Overall intersection LOS is LOS B and all lane groups are LOS C or better.

RT. 30/OLD STAGE ROAD - 2030 WITH HAZELWOOD FARMS

The following table shows signalized intersection LOS results at Rt. 30/Old Stage Road:

TABLE 3-4 Rt. 30/OLD STAGE ROAD 2030 HAZELWOOD ONLY 70 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	B	16.7	B	19.3	Length	AM	PM	AM	PM
EBL2	C	29.6	C	30.6	200	65	125	110	162
EBT	C	27.3	C	23.9		14	15	22	29
EBR	B	16.5	B	14.9	200	0	34	83	145
WBL/T	C	30.8	C	30.8		40	33	54	52
WBR	C	29.7	C	30.0		0	0	65	67
NBL2	C	29.2	C	31.1	200	72	81	106	101
NBT2	B	15.5	B	18.6		111	206	67	129
NBR	B	13.7	B	13.7		0	0	19	16
SBL	B	17.1	C	21.8	200	36	42	71	51
SBT2	A	9.9	B	10.8		83	68	92	76
SBR	A	8.9	A	9.5		10	0	85	66

SimTraffic queue shown is maximum report value for multi-lane groups

Overall intersection LOS is LOS B and all lane groups are LOS C or better.

RT. 30/BARNES ROAD – 2030 WITH HAZELWOOD FARMS

The following table shows unsignalized intersection LOS results at Rt. 30/Barnes Road:

TABLE 3-5 RT. 30/BARNES ROAD 2030 HAZELWOOD ONLY UNSIGNALIZED									
UNSIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	HCM 6th		SimTraffic Q&B	
					Length	AM	PM	AM	PM
EBL/R	C	23.1	D	32.7		35	28	89	79
NBL/T	A	9.9	A	8.8		3	5	92	177

All lanes have LOS D or better.

OLD STAGE ROAD/SOUTH #2 ENTRANCE – 2030 WITH HAZELWOOD FARMS

The following table shows roundabout intersection LOS results at the Old Stage Road/South #2 entrance:

TABLE 3-6 OLD STAGE ROAD/South #2 Entrance 2030 HAZELWOOD ONLY ROUNDABOUT									
ROUNDABOUT LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	SIDRA		SimTraffic Q&B	
Overall	A	6.0	A	5.8	Length	AM	PM	AM	PM
EBL/T	A	7.4	A	7.4		41	41	36	79
WBT	A	4.9	A	4.4		29	25	18	24
WBR	A	4.0	A	3.8		16	16	0	0
SBL/R	A	7.2	A	6.8		37	36	42	78

All approach lanes have LOS A. All queues are less than 90 feet.

OLD STAGE ROAD/SOUTH #1 ENTRANCE – 2030 WITH HAZELWOOD FARMS

The following table shows roundabout intersection LOS results at the Old Stage Road/South #1 entrance:

TABLE 3-7 OLD STAGE ROAD/South #1 2030 HAZELWOOD ONLY ROUNDABOUT									
ROUNDABOUT LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	SIDRA		SimTraffic Q&B	
Overall	A	4.5	A	4.8	Length	AM	PM	AM	PM
EBL/T	A	3.7	A	4.1		4	5	21	30
WBT/R	A	5.0	A	4.4		30	24	12	9
SBL/R	A	3.7	A	5.4		10	30	23	52

All approach lanes have LOS A. All queues are less than 60 feet.

I-64 RAMP MERGES/DIVERGES - 2030 WITH HAZELWOOD FARMS

The following table shows I-64 ramp merge and diverge LOS:

TABLE 3-8 I-64/RT. 30 RAMPS MERGE/DIVERGE 2030 HAZELWOOD ONLY 70 SECOND				
LOS And Passenger Cars Per Mile Per Lane				
	AM		PM	
I-64 Eastbound Ramp A Diverge	B	12.9	B	14.8
I-64 Eastbound Loop A Merge	B	15.8	B	16.5
I-64 Westbound Ramp B Merge	B	13.8	B	17.3
I-64 Westbound Ramp C Diverge	B	12.9	B	14.8
I-64 Eastbound Ramp D Merge	B	18.1	B	19.4

All merge/diverge movements have LOS B or better.

SUMMARY COMMENTS - 2030 WITH HAZELWOOD FARMS

All signalized intersections have LOS C or better overall and for each turning movement. For unsignalized Barnes Road, eastbound AM was LOS C and PM is LOS D. Roundabouts have LOS A overall and for approaches. All I-64 ramp merges and diverge sections have LOS B.

Exhibits 8d and 8e show LOS results on the network diagram.

MOSS CREEK TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT

Trip generation for Moss Creek was provided in the LandMark Design Group traffic study for Moss Creek revised March 2006. Those trips are shown in Table 1 on Exhibit 9.

Primary trip distribution for Moss Creek trips is shown in Table 2 on Exhibit 9. Trip distribution to north Rt. 30 and Fieldstone Parkway are taken from the LandMark study. The remainder of primary trips is distributed throughout the remainder of the network in general accordance with North Hazelwood Farms distribution. Moss Creek primary trips as assigned on Appendix Exhibits D1 and D2.

Moss Creek pass by trips are distributed in Table 3 on Exhibit 9. Moss Creek pass by trips are assigned on Appendix Exhibits D3 and D4.

All Moss Creek AM peak hour traffic assignment is shown on Exhibit 9a and all Moss Creek PM peak hour traffic is shown on Exhibit 9b. Daily traffic for Moss Creek is shown on Exhibit 9c. Exhibit 9c also shows the multi-purpose path and bike lane to be included with the Moss Creek development.

Moss Creek truck assignments are shown on Appendix Exhibits C5 and C6 for the AM and PM peak hours respectively.

STONEHOUSE TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT

Exhibits 10a and 10b respectively show AM and PM peak hour traffic for Stonehouse phases 1 and 2 presented in the Timmons Group traffic study for Stonehouse in 2015. Exhibit 10c shows daily traffic for Stonehouse based on trip generation k-factor.

Stonehouse truck assignments are shown on Appendix Exhibits F1 and F2 for the AM and PM peak hours respectively.

ANALYSIS OF 2030 TRAFFIC WITH ALL DEVELOPMENT

Total 2030 AM peak hour traffic with all three developments is shown on Exhibit 11a. Total 2030 PM peak hour traffic with all three developments is shown on Exhibit 11b. 2030 daily traffic with all development is shown on Exhibit 11c.

Appendix Exhibits F3 and F4 show total trips in 2030 with all development for the AM and PM peak hours respectively. Appendix Exhibits F3 and F4 show truck percentages for turning movements in 2030 with all development for the AM and PM peak hours respectively.

Development improvements to the Rt. 30 corridor within the study are included at the following intersections from north to south (see Exhibit 2g for reference):

1. Moss Creek #1 Entrance #1 (Station 303+86). Extend 2nd northbound through lane from Fieldstone to drop off right turn at MC1. Widen for southbound left turn lane. Add traffic signal. All work by Moss Creek development.
2. Fieldstone Parkway/North #1 Entrance (Station 313+06). For Stonehouse, future signalization is required with second westbound left turn lane. For North Hazelwood Farms, signalization also required with northbound double left turn lanes, southbound right turn lane, and four eastbound lanes: double left turn lanes, through lane and right turn lane. See Exhibit 2b for details.
3. North #2 Entrance (Station 321+35). Close crossover and add southbound right turn lane. Right turn in/out only. All work by Hazelwood Farms.
4. I-64 Westbound Ramps B & C (Station 337+23). Westbound double left turn lanes and northbound double left turn lanes with signal proffered by Stonehouse. Signalization also proffered by South Hazelwood Farms.
5. I-64 Eastbound Off Ramp A (Station 350+36). Signal addition proffered by North Hazelwood Farms. See Exhibit 2f.
6. I-64 Eastbound On Ramp D (Station 353+47). Extend northbound right turn lane back to Old Stage Road intersection as drop-off lane by South Hazelwood Farms. See Exhibits 2f.
7. Old Stage Road (Station 359+58). South Hazelwood Farms proffered improvements include (see Exhibit 2e):
    a. Four lanes on Old Stage Road eastbound approach: double left turn lanes, through lane and right turn lane.
    b. Two lanes on westbound approach.
    c. Double left turn lane on northbound approach.
    d. Add third through lane on northbound approach.
    e. Extend southbound right turn lane back to Ramp A as drop-off lane at Old Stage Road.
    f. Add signal.

Synchro and SimTraffic reports are included in the Technical Appendix as follows for signalized and unsignalized (two way stop) intersections:

TABLE E: 2030 FULL DEVELOPMENT ANALYSIS REPORT EXHIBITS

Report	70 Second Cycle		90/100 Second Cycle	
	AM	PM	AM - 90	PM - 100
HCM2000 Signalized Intersection	J9	J10	J11	J12
HCS6 Unsignalized Intersection	K9	K10	K11	K12
Synchro 10 Queues	L9	L10	L11	L12
SimTraffic Queuing & Blocking	M9	M10	M11	M12

Analyses for roundabouts are not included for full buildout conditions because the traffic assignments on Old Stage Road at the Hazelwood Farms South entrances have the same traffic as Hazelwood only conditions.

The 90 second AM and 100 second PM cycles were optimized by Synchro for coordinated signal operation.

I-64 ramp merge and diverges LOS are including in the Appendix Exbibit T series for full build out.

Exhibit 11c shows 2030 daily traffic with all development and all pedestrian/bicycle facilities.

2030 TRAFFIC WITH ALL DEVELOPMENT – 70 SECOND CYCLE

RT. 30/FIELDSTONE PARKWAY- 2030 WITH ALL DEVELOPMENT 70 SEC CYCLE

Table 4-1 shows signalized intersection LOS and queuing for Rt. 30/Fieldstone Parkway:

TABLE 4-1 Rt. 30/FIELDSTONE PARKWAY 2030 ALL DEVELOPMENT 70 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	C	22.1	C	20.8	Length	AM	PM	AM	PM
EBL2	C	33.1	C	26.3	150	15	91	39	126
EBT	C	29.7	C	27.0		5	28	8	38
EBR	B	17.0	B	12.9	200	0	95	76	198
WBL2	C	32.2	C	31.2	250	85	67	146	138
WBT/R	C	25.3	C	32.0		26	39	45	70
NBL2	C	23.1	B	19.1	300	62	118	122	361
NBT2	B	13.1	B	15.8		137	321	118	547
NBR	B	17.6	A	2.2	350	2	3	0	77
SBL	B	13.2	B	18.0	150	17	20	64	57
SBT2	C	25.0	C	34.3		385	245	267	208
SBR	B	15.1	C	33.1	200	0	4	57	73

SimTraffic queue shown is maximum report value for multi-lane groups

All turning movements are LOS C or better with overall LOS C. Auxiliary lane queues are accommodated by storage length provided.

RT. 30/I-64 WESTBOUND RAMPS - 2030 WITH ALL DEVELOPMENT 70 SEC CYCLE

Table 4-2 shows signalized intersection LOS and queuing for Rt. 30/I-64 westbound ramps:

TABLE 4-2 Rt. 30/I-64 WESTBOUND RAMPS 2030 ALL DEVELOPMENT 70 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	B	19.3	B	15.4	Length	AM	PM	AM	PM
WBL	C	32.2	C	29.6		174	117	120	110
NBL	C	26.0	C	23.1	200	109	153	117	175
NBT2	A	8.5	A	6.3		141	178	100	108
SBT2	B	18.3	C	20.7		444	376	433	294
SBR	A	0.1	A	0.2	300	0	0	0	0

SimTraffic queue shown is maximum report value for multi-lane groups

All turning movements are LOS C or better as well as overall LOS B. Auxiliary lane queues are accommodated by storage length provided.

RT. 30/I-64 EASTBOUND RAMP A - 2030 WITH ALL DEVELOPMENT 70 SEC CYCLE

Table 4-3 shows signalized intersection LOS and queuing for Rt. 30/I-64 eastbound ramps:

TABLE 4-3 Rt. 30/I-64 EASTBOUND RAMP 2030 ALL DEVELOPMENT 70 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	A	5.4	A	5.9	Length	AM	PM	AM	PM
EBL	C	28.8	C	29.0		112	166	134	174
NBT2	A	1.5	A	4.1		43	84	57	174
SBT2	A	4.4	A	2.2		48	11	120	105

SimTraffic queue shown is maximum report value for multi-lane groups

All turning movements are LOS C or better as well as overall LOS A.

RT. 30/OLD STAGE ROAD - 2030 WITH ALL DEVELOPMENT 70 SEC CYCLE

Table 4-4 shows signalized intersection LOS for Rt. 30/Old Stage Road:

TABLE 4-4 Rt. 30/OLD STAGE ROAD 2030 ALL DEVELOPMENT 70 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	C	23.8	C	28.7	Length	AM	PM	AM	PM
EBL2	C	28.0	C	30.6	200	62	125	101	164
EBT	C	26.0	C	23.9		14	15	23	26
EBR	B	15.9	B	14.9	200	0	34	88	147
WBL/T	C	30.8	C	30.8		40	33	65	56
WBR	C	29.7	C	30.0		0	0	70	80
NBL2	C	30.2	C	31.1	200	73	81	98	110
NBT/R3	B	16.2	C	29.8		139	430	109	245
SBL	C	27.8	C	26.0	200	47	36	68	58
SBT2	C	28.0	C	33.2		411	377	242	235
SBR	C	20.6	A	6.9		20	10	85	78

SimTraffic queue shown is maximum report value for multi-lane groups

All turning movements are LOS C or better with overall LOS C. Auxiliary lane queues are accommodated by storage length provided.

RT. 30/MOSS CREEK - 2030 WITH ALL DEVELOPMENT 70 SEC CYCLE

Table 4-5 shows signalized intersection LOS and queuing for Rt. 30/Old Stage Road:

TABLE 4-5 Rt. 30/MOSS CREEK 2030 ALL DEVELOPMENT 70 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	A	9.4	C	24.1	Length	AM	PM	AM	PM
WBL	C	30.8	C	30.7		74	133	89	149
WBR	C	27.7	C	24.7		22	45	32	94
NBT	A	2.9	C	33.9		88	893	129	731
NBR	A	0.4	A	2.9		0	3	41	250
SBL	A	2.9	D	39.1	200	19	100	65	176
SBT	B	11.0	A	7.3		637	208	206	201

Most turning movements are LOS C or better with LOS D for the southbound left turn as well as overall LOS C. Auxiliary lane queues are accommodated by storage length provided.

RT. 30/BARNES ROAD – 2030 WITH ALL DEVELOPMENT 70 SEC CYCLE

Table 4-6 shows unsignalized intersection LOS and queuing for Rt. 30/Barnes Road:

TABLE 4-5 Rt. 30/MOSS CREEK 2030 ALL DEVELOPMENT 70 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	A	9.4	C	24.1	Length	AM	PM	AM	PM
WBL	C	30.8	C	30.7		74	133	89	149
WBR	C	27.7	C	24.7		22	45	32	94
NBT	A	2.9	C	33.9		88	893	129	731
NBR	A	0.4	A	2.9		0	3	41	250
SBL	A	2.9	D	39.1	200	19	100	65	176
SBT	B	11.0	A	7.3		637	208	206	201

The eastbound Barnes Road approach has LOS F while northbound Rt. 30 traffic has LOS A and southbound Rt. 30 traffic doesn't register any delay.

I-64 RAMP MERGES/DIVERGES - 2030 WITH ALL DEVELOPMENT

TABLE 4-7 I-64/RT. 30 RAMPS MERGE/DIVERGE 2030 ALL DEVELOPMENT 70 SECOND				
LOS And Passenger Cars Per Mile Per Lane				
	AM		PM	
I-64 Eastbound Ramp A Diverge	B	12.9	B	14.8
I-64 Eastbound Loop A Merge	B	16.4	B	17.9
I-64 Westbound Ramp B Merge	B	15.2	C	20.5
I-64 Westbound Ramp C Diverge	B	12.9	B	14.8
I-64 Eastbound Ramp D Merge	B	19.9	C	23.5

SUMMARY COMMENTS - 2030 WITH ALL DEVELOPMENT 70 SEC CYCLE

With the 70 second cycle length, all turning movements at signalized intersections on Rt. 30 have LOS C except for the Moss Creek intersection with LOS D for the southbound left turn. Overall signalized LOS is LOS C or better at all intersections.

Exhibits 11d and 11e show LOS results on the network diagram.

2030 TRAFFIC WITH ALL DEVELOPMENT – 90/100 SECOND CYCLE

Synchro traffic signal optimization was used for the Rt. 30 corridor to determine cycle lengths for signal coordination on the corridor. The results were 90 seconds for the AM peak hour and 100 seconds for the PM peak hour. Green time splits at intersections were also set using Synchro optimization.

RT. 30/FIELDSTONE PARKWAY- 2030 WITH ALL DEVELOPMENT 90/100 SEC CYCLE

Table 5-1 shows signalized intersection LOS and queuing for Rt. 30/Fieldstone Parkway:

TABLE 5-1 Rt. 30/FIELDSTONE PARKWAY 2030 ALL DEVELOPMENT 90/100 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	C	23.5	C	22.9	Length	AM	PM	AM	PM
EBL2	D	37.8	D	41.0	150	19	110	43	151
EBT	D	39.6	D	40.2		5	34	10	53
EBR	C	23.6	C	25.7	200	0	117	87	200
WBL2	D	40.3	D	47.1	250	104	91	161	158
WBT/R	D	37.7	D	44.9		31	47	45	70
NBL2	C	31.5	C	31.7	300	97	232	154	236
NBT2	B	11.6	B	12.6		130	282	118	343
NBR	B	16.7	A	9.2	350	6	20	0	0
SBL	B	16.0	C	21.0	150	25	27	60	66
SBT2	C	23.6	C	23.9		311	198	194	236
SBR	B	16.2	A	5.5	200	0	4	38	85

SimTraffic queue shown is maximum report value for multi-lane groups

All turning movements are LOS D or better with overall LOS C. Auxiliary lane queues are accommodated by storage length provided.

RT. 30/I-64 WESTBOUND RAMPS - 2030 WITH ALL DEVELOPMENT 90/100 SEC CYCLE

Table 5-2 shows signalized intersection LOS and queuing for Rt. 30/I-64 westbound ramps:

TABLE 5-2 Rt. 30/I-64 WESTBOUND RAMPS 2030 ALL DEVELOPMENT 90/100 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	B	19.2	B	19.6	Length	AM	PM	AM	PM
WBL	D	42.0	D	48.4		212	169	116	114
NBL	D	46.4	C	34.7	200	112	213	160	235
NBT2	A	7.9	A	3.0		45	51	109	173
SBT2	A	9.3	C	25.5		164	436	240	321
SBR	A	0.1	A	0.3	300	0	0	0	0

SimTraffic queue shown is maximum report value for multi-lane groups

All turning movements are LOS D or better as well as overall LOS B. Auxiliary lane queues are accommodated by storage length provided.

RT. 30/I-64 EASTBOUND RAMP A - 2030 WITH ALL DEVELOPMENT 90/100 SEC CYCLE

Table 5-3 shows signalized intersection LOS and queuing for Rt. 30/I-64 eastbound ramps:

TABLE 5-3 Rt. 30/I-64 EASTBOUND RAMP 2030 ALL DEVELOPMENT 90/100 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	B	10.2	A	8.0	Length	AM	PM	AM	PM
EBL	D	40.0	D	45.9		142	240	156	183
NBT2	A	9.0	A	4.3		87	124	113	170
SBT2	A	6.7	A	2.8		116	96	129	116

SimTraffic queue shown is maximum report value for multi-lane groups

All turning movements are LOS D or better as well as overall LOS A.

RT. 30/OLD STAGE ROAD - 2030 WITH ALL DEVELOPMENT 90/100 SEC CYCLE

Table 5-4 shows signalized intersection LOS for Rt. 30/Old Stage Road:

TABLE 5-4 Rt. 30/OLD STAGE ROAD 2030 ALL DEVELOPMENT 90/100 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	C	25.3	C	24.3	Length	AM	PM	AM	PM
EBL2	D	41.4	D	46.9	200	85	176	121	225
EBT	D	37.0	D	35.5		18	20	27	34
EBR	C	27.1	C	25.1	200	20	72	99	192
WBL/T	D	42.1	D	46.8		51	44	63	55
WBR	D	40.0	D	45.0		0	0	71	99
NBL2	D	37.0	D	50.2	200	92	114	120	128
NBT/R3	B	19.5	C	20.9		176	408	145	264
SBL	D	41.3	D	52.8	200	78	63	77	61
SBT2	C	23.6	B	15.1		341	255	219	200
SBR	B	19.0	B	11.9		32	0	125	70

SimTraffic queue shown is maximum report value for multi-lane groups

All turning movements are LOS D or better with overall LOS C. Auxiliary lane queues are accommodated by storage length provided.

RT. 30/MOSS CREEK - 2030 WITH ALL DEVELOPMENT 90/100 SEC CYCLE

Table 5-5 shows signalized intersection LOS and queuing for Rt. 30/Old Stage Road:

TABLE 5-5 Rt. 30/MOSS CREEK 2030 ALL DEVELOPMENT 90/100 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	A	9.2	B	18.9	Length	AM	PM	AM	PM
WBL	D	50.8	E	69.9		99	243	107	249
WBR	D	38.3	D	38.6		28	47	21	123
NBT	A	3.2	B	18.0		64	454	93	498
NBR	A	1.8	A	2.0		0	1	36	87
SBL	A	2.4	C	32.0	200	15	116	55	201
SBT	A	8.3	A	5.7		428	179	186	230

Overall LOS B with turning movements LOS A through E. Auxiliary lane queues are accommodated by storage length provided.

Exhibits 11f and 11g show LOS results on the network diagram.

SUMMARY AND CONCLUSIONS

70 SECOND CYCLE RESULTS

70 second cycle traffic signal analysis was incorporated into this study because:

1. 70 second cycle length was used in the 2015 Stonehouse study by Timmons Group.
2. JCC has LOS C objective for turning movements.
3. Traffic signals do not operate to provide LOS C on turning movements: that is not a performance criterion.
4. Only short cycles (i.e., shorter than realistic) produce LOS C for turning movements.

With 70 second cycles lengths, development of Hazelwood Farms alone and with development of Stonehouse and Moss Creek produce LOS C on turning movements as well overall intersection LOS C for the four Rt. 30 signalized intersections serving Hazelwood Farms (Fieldstone Parkway, I-64 westbound ramps, I-64 eastbound off-ramp and Old Stage Road). The only LOS for signalized intersections less than LOS C is LOS D for the exiting left turn from Moss Creek to Rt. 30.

2018 traffic studies for Stonehouse by Gorove-Slade used cycle length less than 70 seconds for Rt. 30/Fieldstone and Rt. 30/westbound I-64 ramps (mitigated).

90 SECOND AM/100 SECOND PM CYCLE RESULTS

90/100 second cycle traffic signal analysis is far more typical of how signals are designed and operated. There are LOS D results mostly located on minor street approaches for the four Rt. 30 signalized intersections serving Hazelwood Farms. All signalized intersections have overall LOS C or better. In some instances, overall delay at the intersection decreased in seconds delay relative to 70 second cycle results.

In almost all instances, signalized intersection delay for northbound and southbound through movements on Rt. 30 decreased from 70 second cycle levels. This illustrates the essence of traffic signal design: green time on minor streets is minimized with related increases in delay to allow greater green time and reduced delay for major street through movements, which are the bulk of the traffic. Forcing traffic signal timing to produce LOS C for turning moments is not an element of modern traffic signal efficient design and operation.

RT. 30/MOSS CREEK DESIGN

At the Rt. 30/Moss Creek intersection, there is overall LOS A and B with LOS D for some minor street movements and LOS E for the PM peak hour westbound left turn movement. This intersection is essentially one northbound through lane and one southbound through, and thus is an inferior design to the other four signalized intersections. The traffic study for Moss Creek also used artificially reduced signal timing (less than 50 seconds) to get LOS C for turning movements.

RT. 30/BARNES ROAD

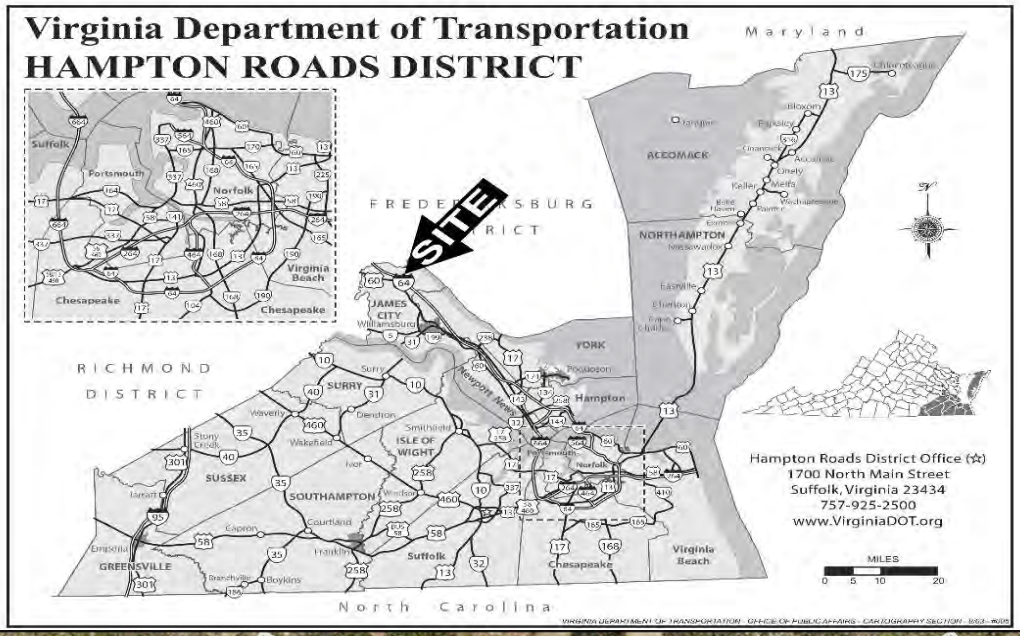
With all development in 2030, the eastbound approach on Barnes Road is LOS F in the PM peak hour. Some alternatives for this intersection include:

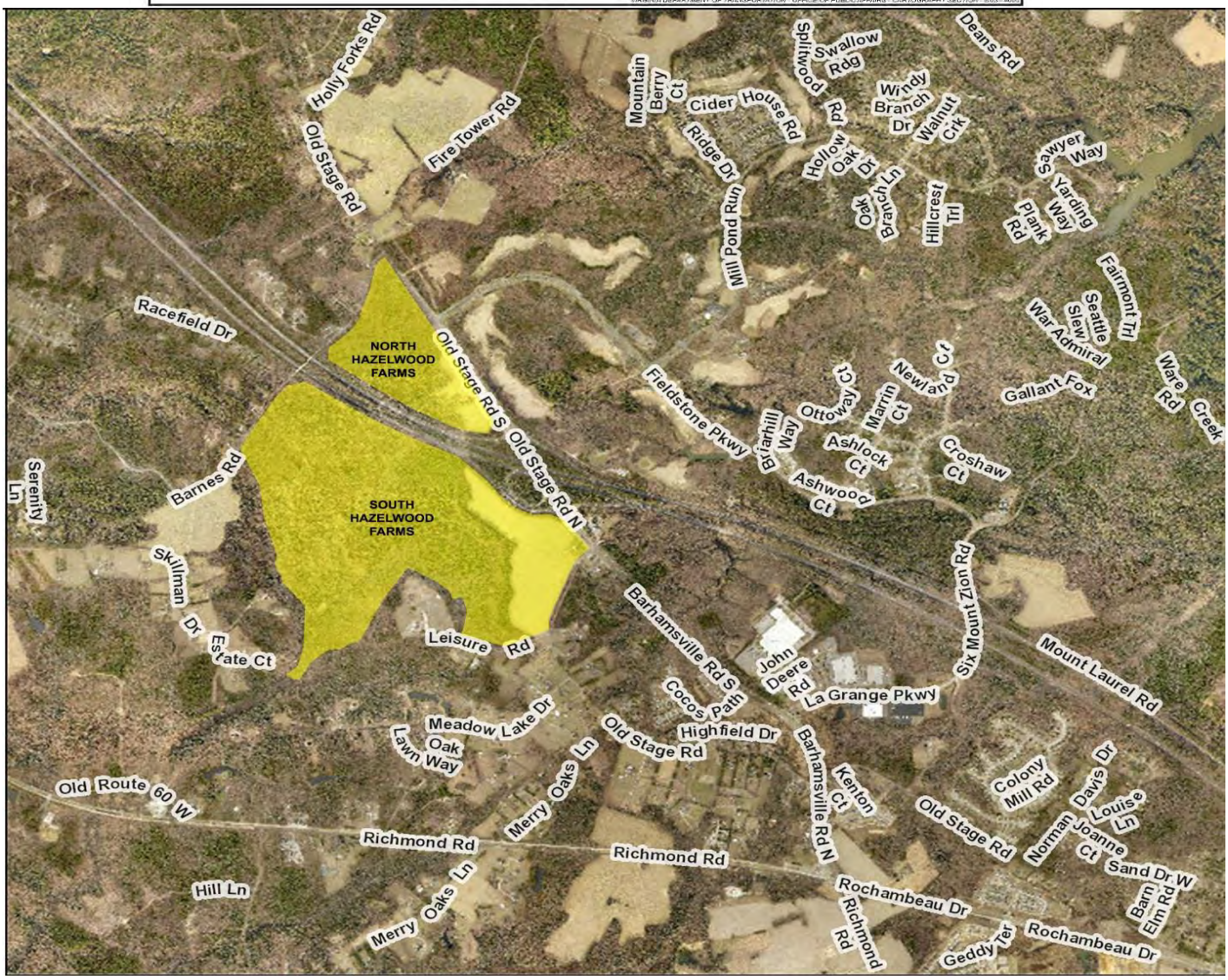
1. Add a left turn lane on the eastbound approach. This produces LOS F for the resulting separate left turn lane.
2. Prohibit eastbound left turn and divert to U-turn at Fieldstone Parkway. This produces LOS B for the eastbound approach with a slight increase in delay at the Rt. 30/Fieldstone Parkway intersection.
3. Widen Rt. 30 to four lanes. With wide median and yield bar treatments in the median, this produces LOS C for the eastbound approach.

CONCLUSIONS

The proffered improvements by Stonehouse and Hazelwood Farms at four intersections on Rt. 30 accommodates all future traffic. Moss Creek access on Rt. 30 is under designed and warrants further consideration during development plan review. If traffic on Barnes Road at Rt. 30 becomes a problem, the problem eastbound left turns can be diverted to the Rt. 30/Fieldstone Parkway to be constructed Stonehouse and Hazelwood Farms developments.

REPORT EXHIBITS





HAZELWOOD FARMS
REGIONAL AND AREA MAPS

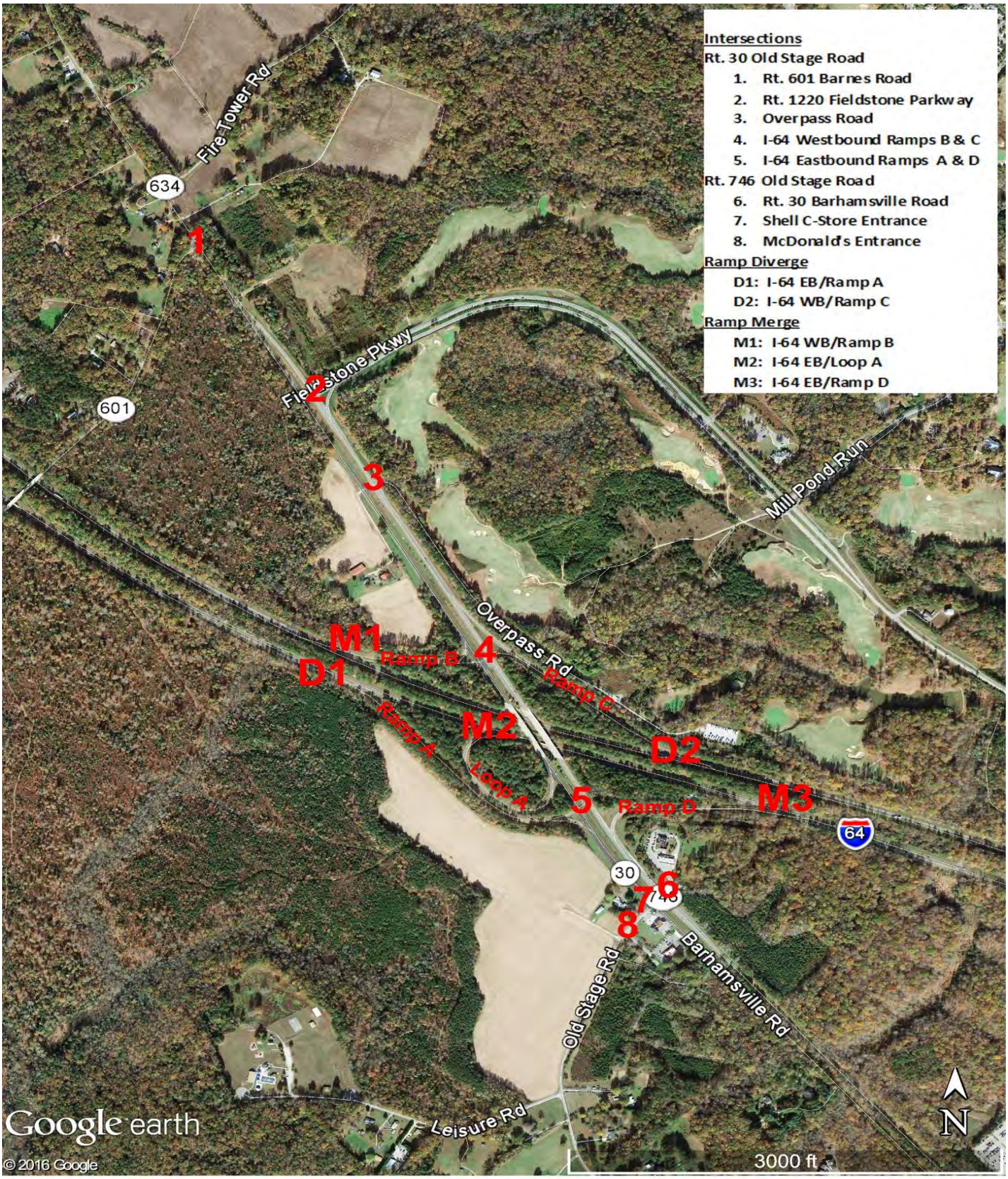
DRW Consultants, LLC
804-794-7312

Exhibit 1a

HAZELWOOD FARMS
AREA PARCEL MAP

DRW Consultants, LLC
804-794-7312

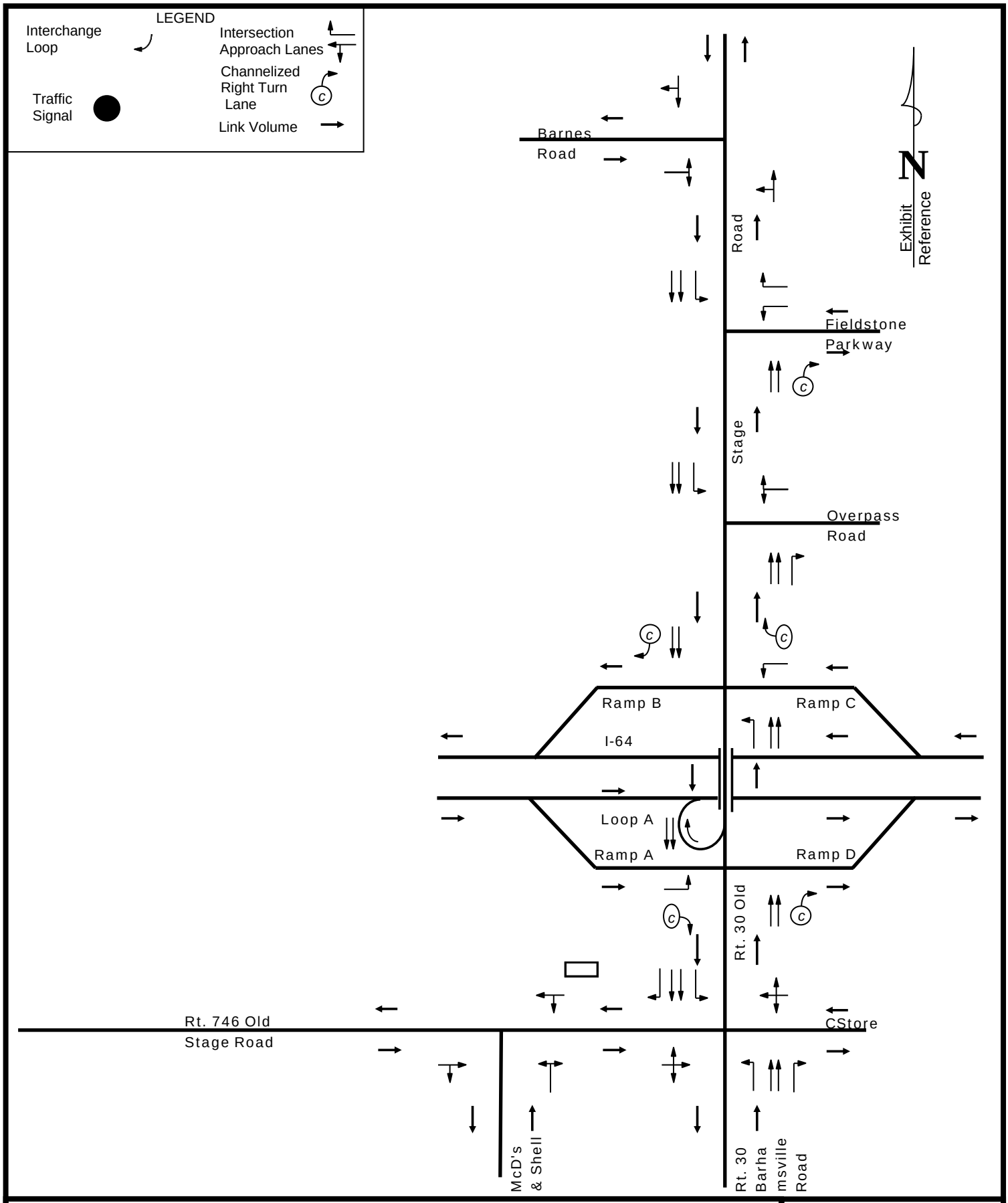
Exhibit 1b



HAZELWOOD FARMS
PEAK HOUR COUNT LOCATIONS

DRW Consultants, LLC
804-794-7312

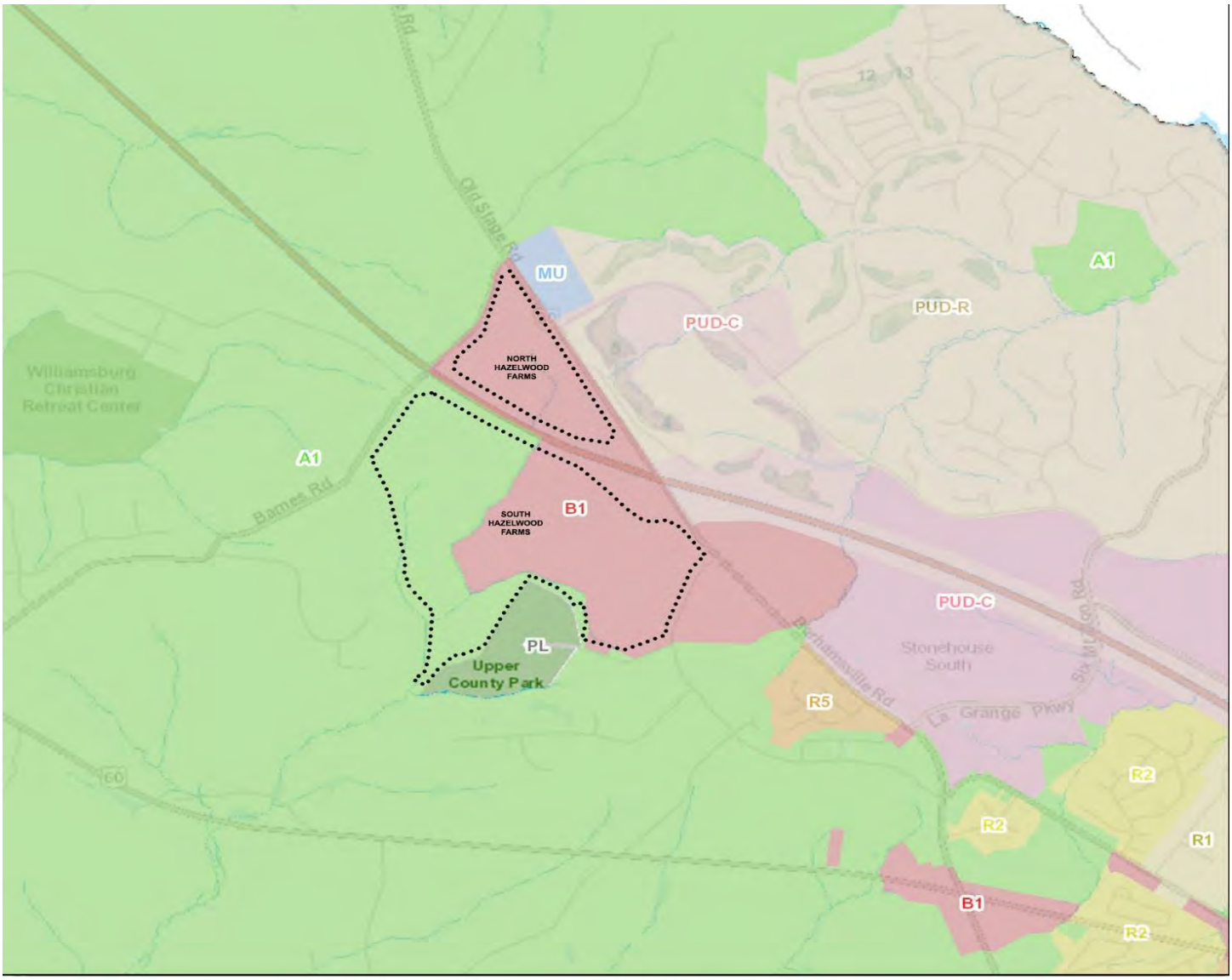
Exhibit 1c



HAZELWOOD FARMS
EXISTING ROADWAYS

DRW Consultants, LLC
804-794-7312

Exhibit 1d



Zoning

- General Agriculture (A1)
- General Business (B1)
- General Industrial (M2)
- General Residential (R2)
- Limited Business (LB)
- Limited Business/Industrial (M1)
- Limited Residential (R1)
- Low-Density Residential (R6)
- Mixed Use (MU)
- Multi-Family Residential (R5)
- Planned Unit Development Commercial (PUD-C)
- Planned Unit Development Residential (PUD-R)
- Public Land (PL)
- Residential Planned Community (R4)
- Rural Residential (R8)

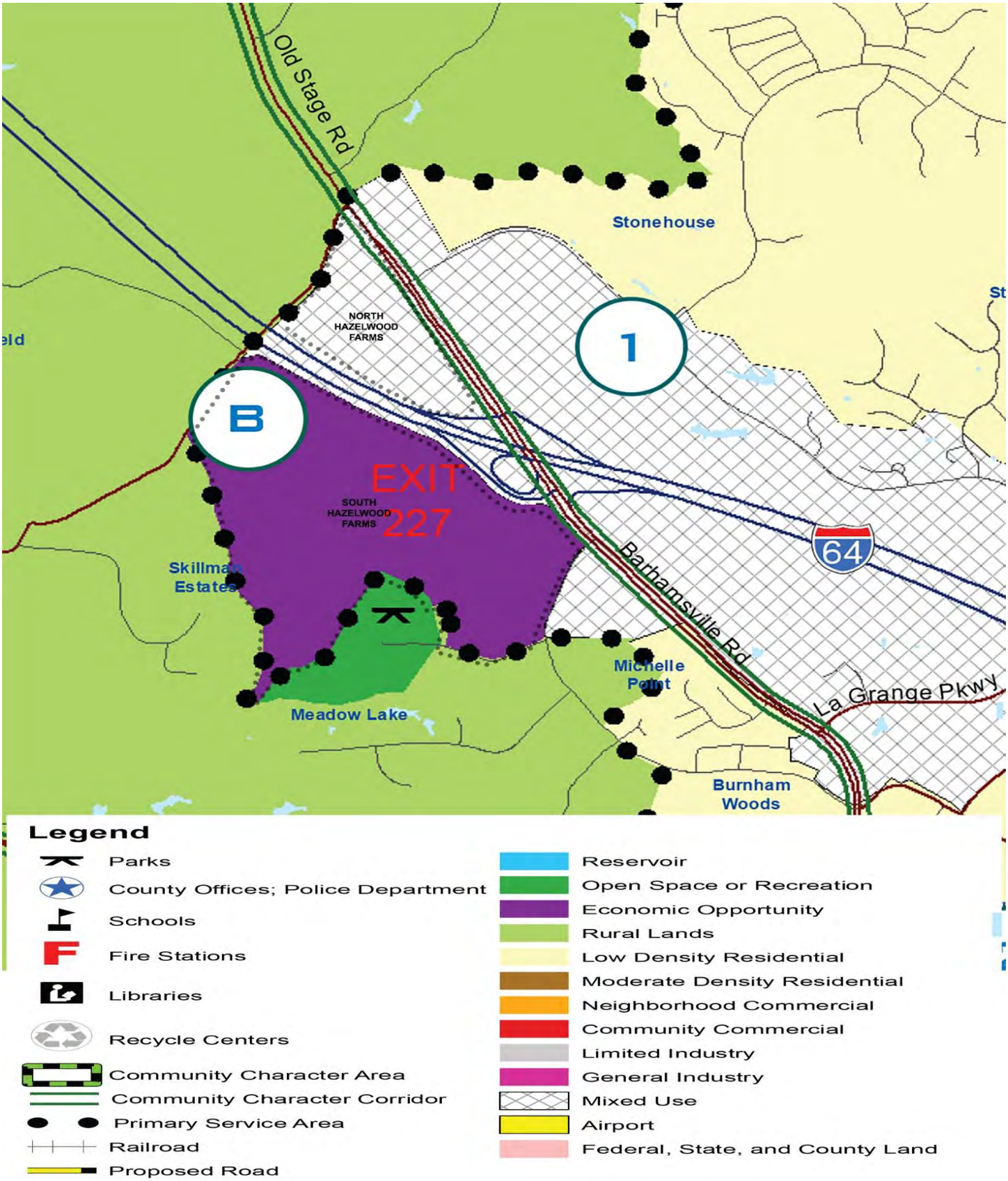
Feet

0 600 1200 1800 2400

HAZELWOOD FARMS
EXISTING ZONING

DRW Consultants, LLC
804-794-7312

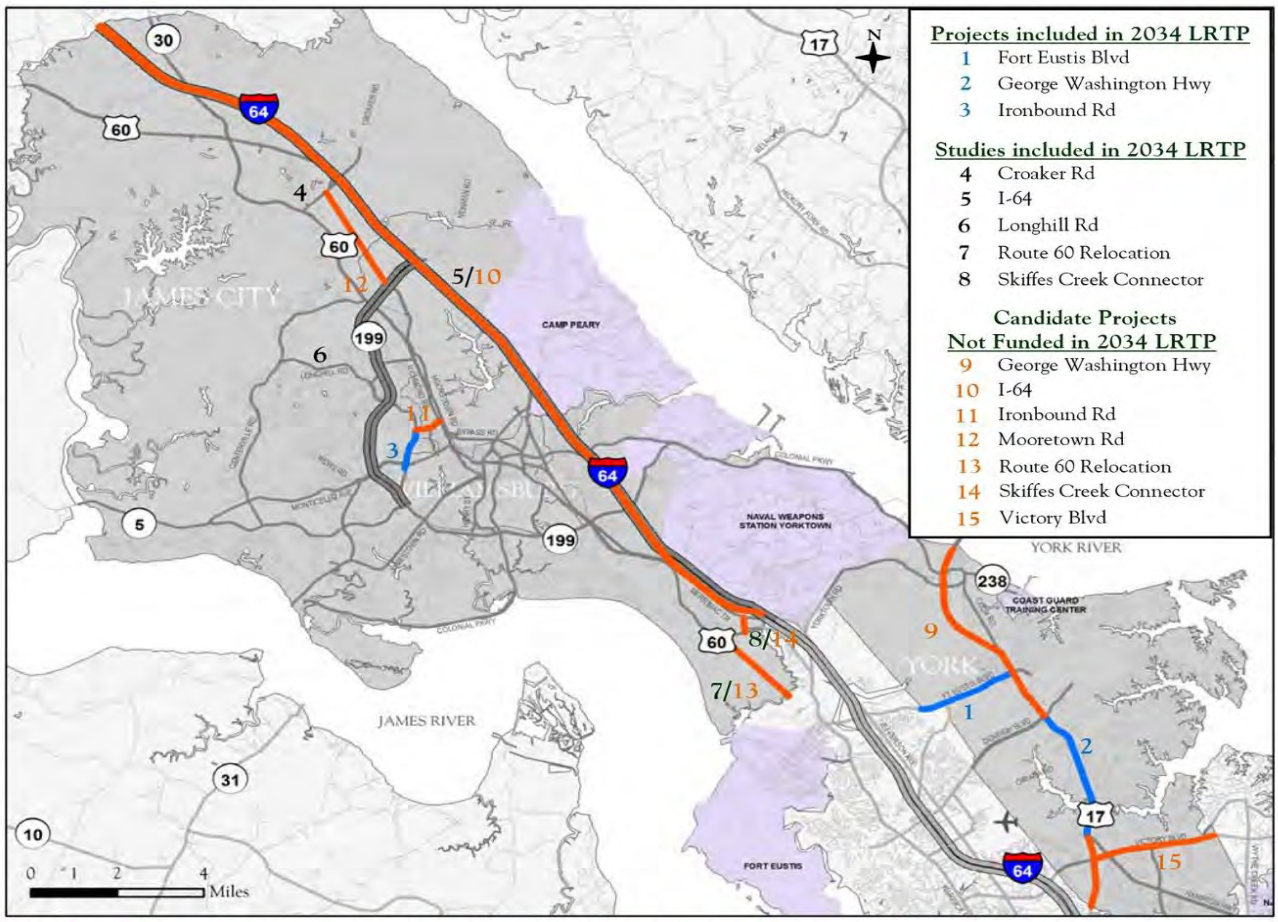
Exhibit 1e



HAZELWOOD FARMS
JAMES CITY COUNTY 2035 LAND USE MAP

DRW Consultants, LLC
804-794-7312

Exhibit 1f



Map 8 – Projects/Studies Included in the 2034 LRTP and Candidate Projects Not Funded in the 2034 LRTP

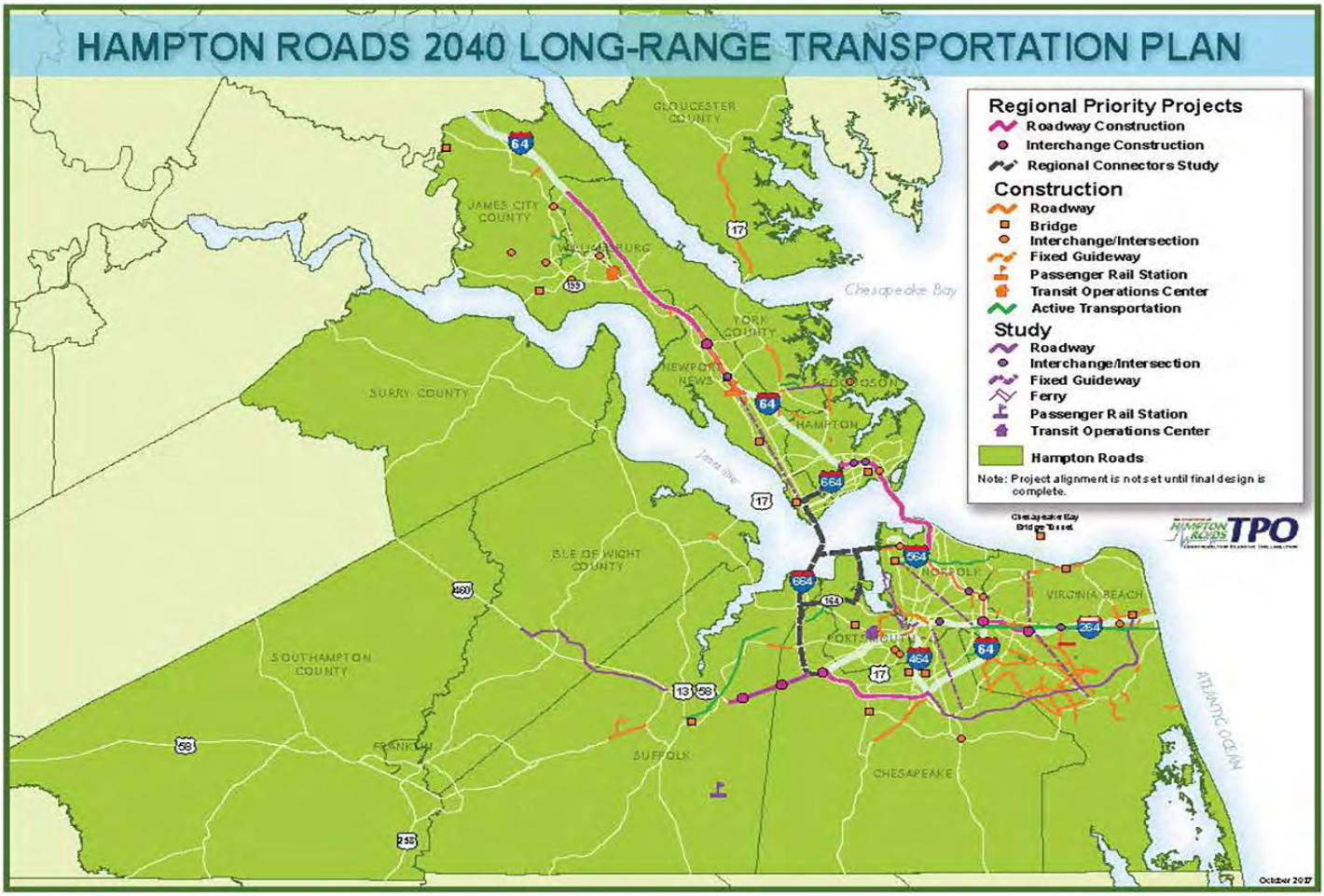
Data Source: HRTPO.

James City/Williamsburg/York Transportation Study

2034 LONG RANGE TRANSPORTATION PLAN
JAMES CITY COUNTY/WILLIAMSBURG/YORK COUNTY
COMPREHENSIVE TRANSPORTATION STUDY
HAMPTON ROADS TPO MARCH 2012

DRW Consultants, LLC
804-794-7312

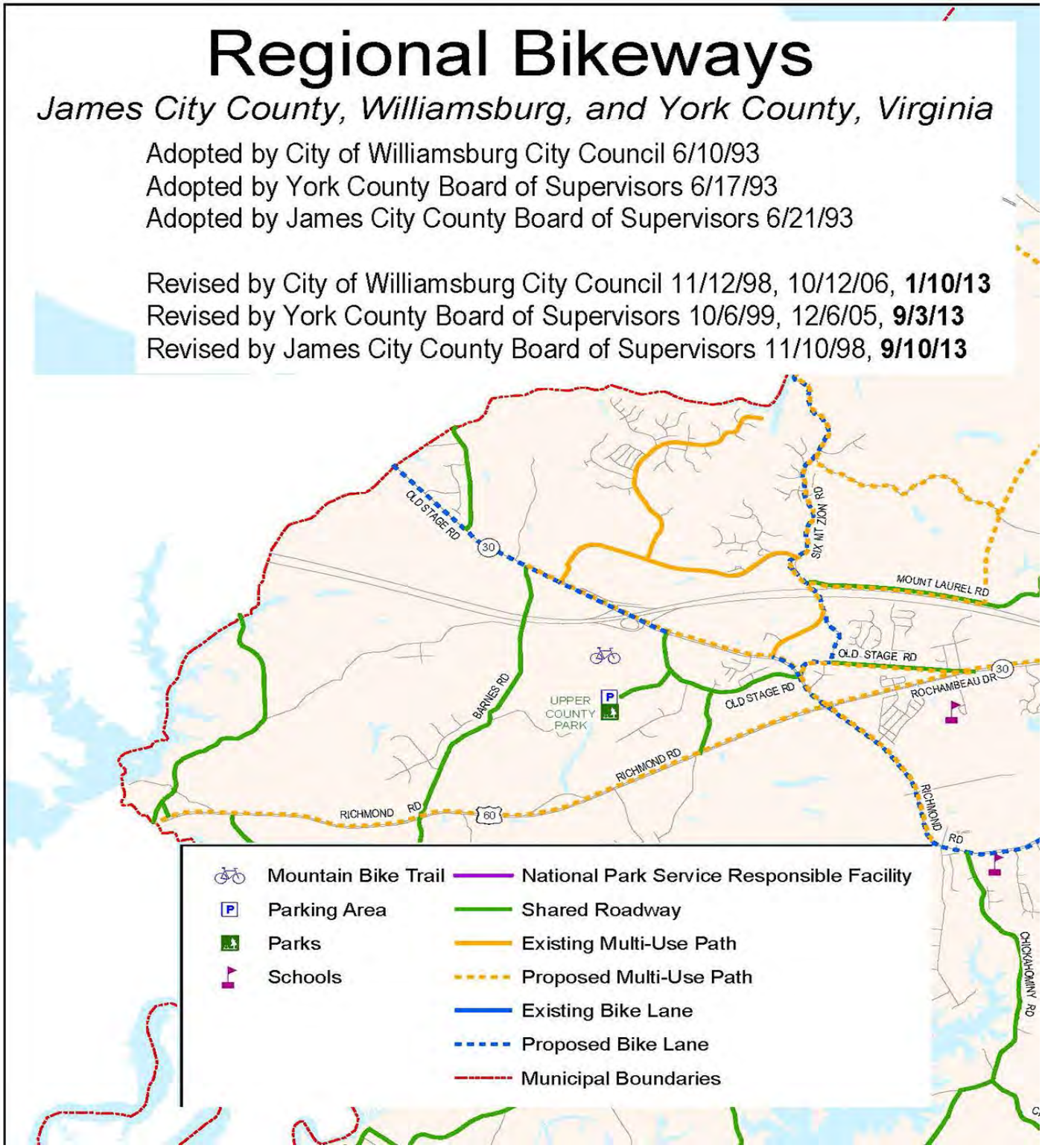
Exhibit 1g-1



HAMPTON ROADS 2040 LONG-RANGE TRANSPORTATION PLAN
HAMPTON ROADS TPO

DRW Consultants, LLC
804-794-7312

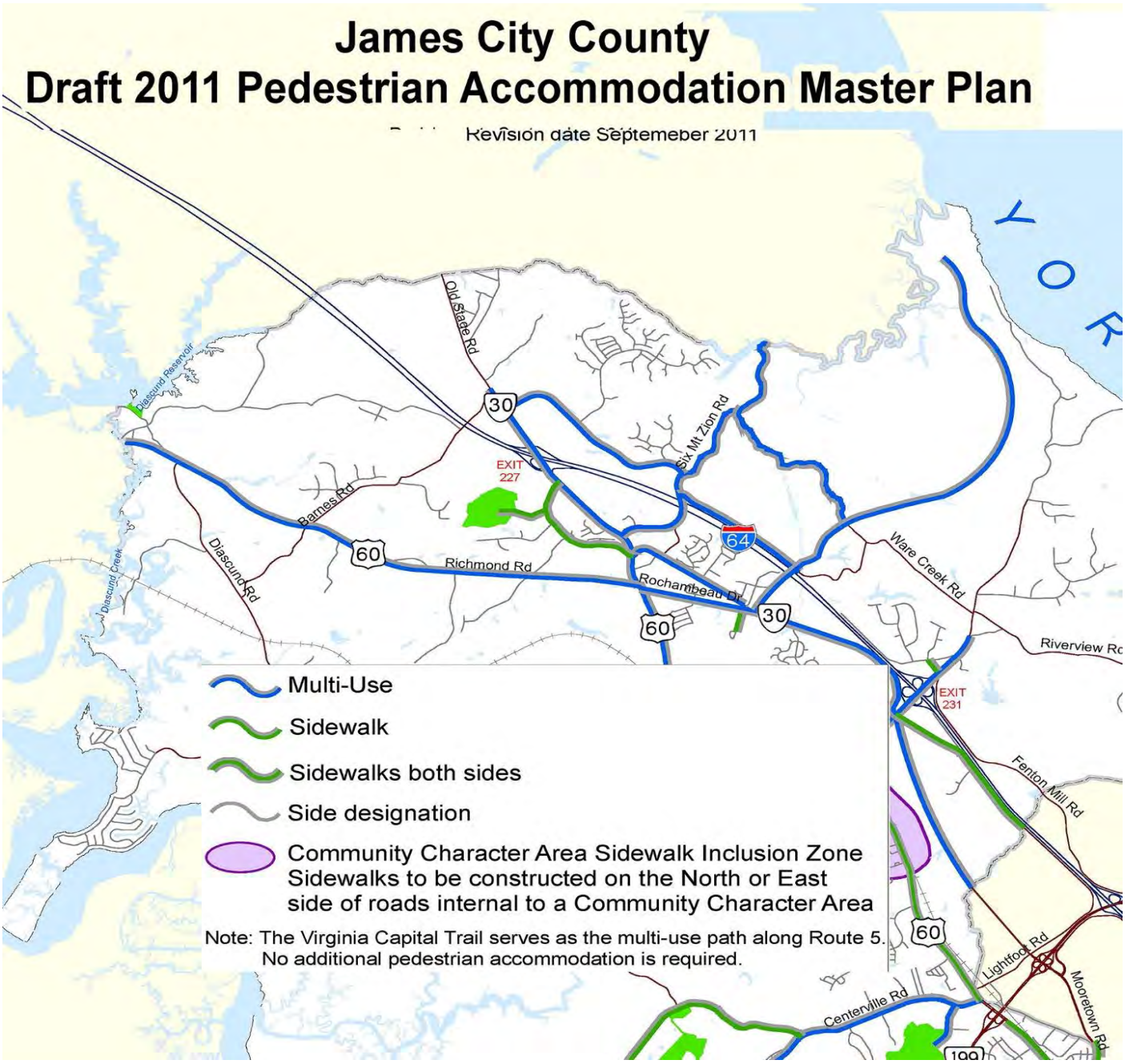
Exhibit 1g-2



REGIONAL BIKEWAYS
JAMES CITY COUNTY , WILLIAMSBURG, AND YORK COUNTY
REVISED 2013

DRW Consultants, LLC
804-794-7312

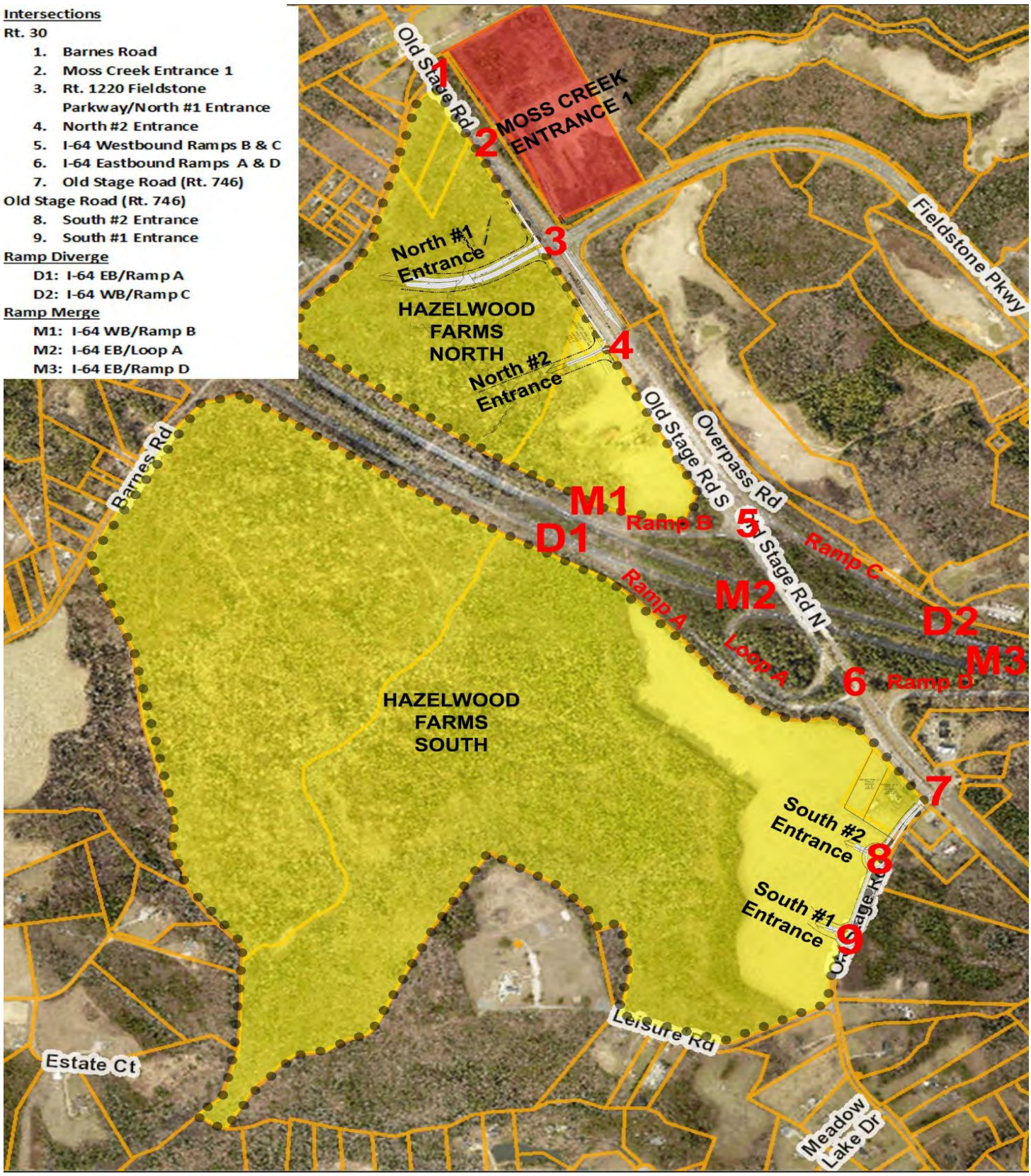
Exhibit 1g-3



JAMES CITY COUNTY
DRAFT 2011 PEDESTRIAN
ACCOMMODATION MASTER PLAN

DRW Consultants, LLC
804-794-7312

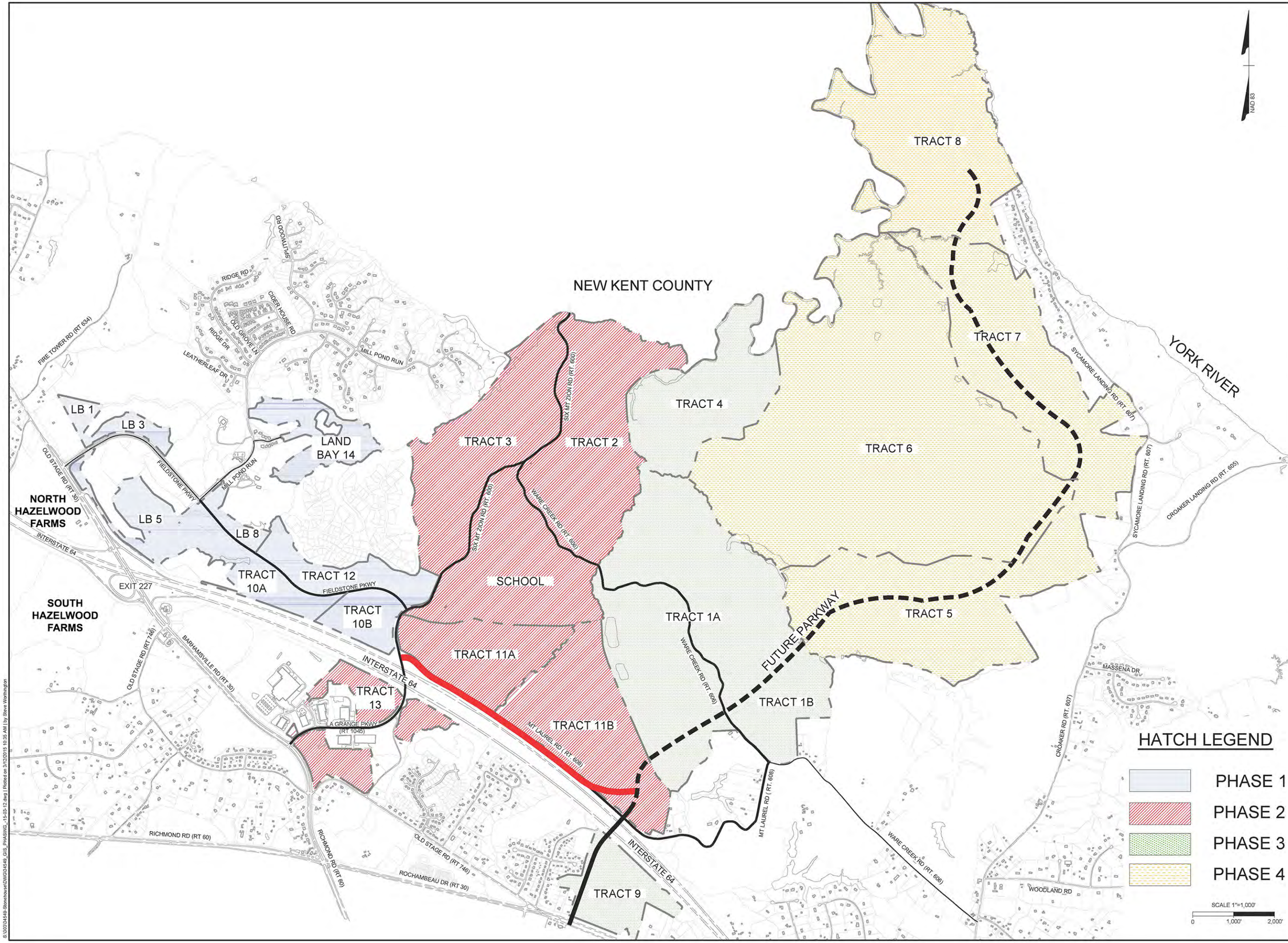
Exhibit 1g-4



HAZELWOOD FARMS
PEAK HOUR ANALYSIS LOCATIONS

DRW Consultants, LLC
804-794-7312

Exhibit 1h



THIS DRAWING PREPARED AT THE
Corporate Headquarters
1001 Boulders Parkway | Richmond, VA 23225
TEL 804.200.6500 FAX 804.560.1016 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE
3-12-2015

DRAWN BY
A.CAMPBELL

DESIGNED BY
S. WORTHINGTON

CHECKED BY

SCALE
1"=1,000'

TIMMONS GROUP

STONEHOUSE

STONEHOUSE DISTRICT - JAMES CITY COUNTY - VA

DEVELOPMENT PHASING PLAN

EXHIBIT
1i

JOB NO.
34549

SHEET NO.
1 OF 1

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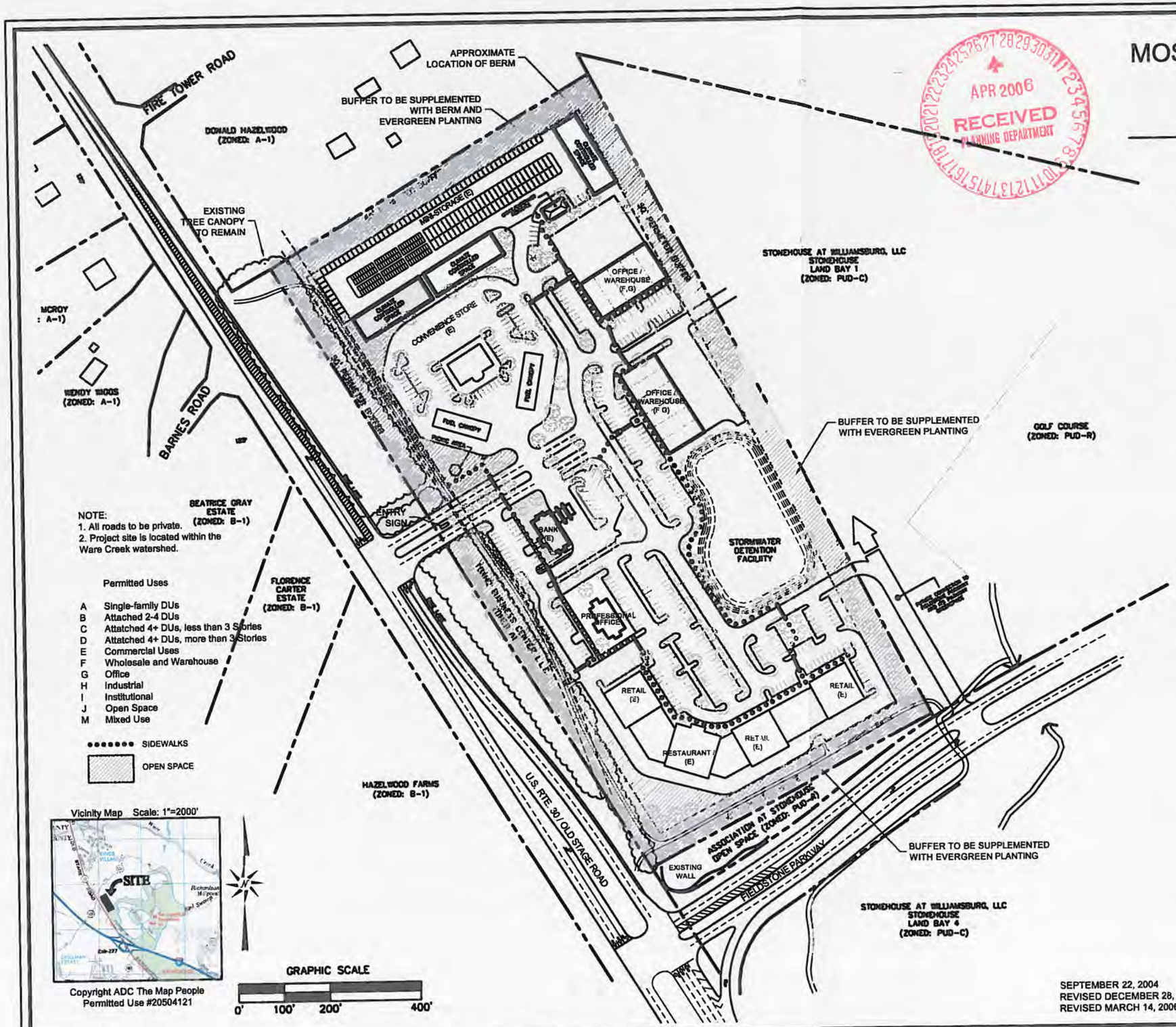
S:\303\34549-Stonehouse\DWG\34549_GIS_PHASING_-15-03-12.dwg | Plotted on 3/12/2015 10:35 AM | by Steve Worthington

Z-12-05 DDS adopted 5/9/06

PROPOSED MASTER PLAN
MOSS CREEK COMMERCE CENTRE
AT STONEHOUSE

9690 OLD STAGE ROAD
JAMES CITY COUNTY, VIRGINIA



NOTE:
1. All roads to be private.
2. Project site is located within the Ware Creek watershed.

Permitted Uses

- A Single-family DUs
- B Attached 2-4 DUs
- C Attatched 4+ DUs, less than 3 Stories
- D Attatched 4+ DUs, more than 3 Stories
- E Commercial Uses
- F Wholesale and Warehouse
- G Office
- H Industrial
- I Institutional
- J Open Space
- M Mixed Use

●●●●●●● SIDEWALKS

OPEN SPACE

Vicinity Map Scale: 1"=2000'

Copyright ADC The Map People
Permitted Use #20504121

GRAPHIC SCALE
0' 100' 200' 400'

APR 2006
RECEIVED
PLANNING DEPARTMENT

SITE SUMMARY:

PARCEL ID #:	0440100004 and 044010034
GROSS SITE AREA:	21.9 AC +/-
NET DEVELOPABLE AREA:	21.9 AC.+/-
EXISTING ZONING:	A1 (GENERAL AGRICULTURAL)
PROPOSED ZONING:	MU (MIXED USE)
PERIMETER BUFFER REQU'D.:	50'
MIN. LOT SIZE, FRONT YARD:	N/A
REAR YARD AND SIDE YARD:	N/A
OPEN SPACE REQU'D.:	10% (2.19 AC. +/-)
OPEN SPACE PROVIDED:	2.19 AC. +
NON-RESIDENTIAL FLOOR AREA.:	3.1 AC
FLOOR AREA DENSITY:	.14
IMPERVIOUS COVER:	9.5 +/-AC (43%+/-)

PROGRAM SUMMARY:

- 3,574 S.F. BANK WITH 3 DRIVE-THRU LANES
- 3,910 S.F. CONVENIENCE STORE WITH FUELING
- 54,250 S.F. MINI-STORAGE FACILITY:
  - ~ 3-CLIMATE CONTROLLED BUILDINGS
  - ~ 5' X 10' STORAGE SPACE (120 IUNITS)
  - ~ 10' X 20' STORAGE SPACE (28 UNITS)
  - ~ 10' X 15' STORAGE SPACE (60 UNITS)
  - ~ 10' X 25' STORAGE SPACE (28 UNITS)
  - ~ OFFICE/CARETAKER BLDG.
- 44,475 S.F. RETAIL WITH RESTAURANT ANCHOR
- 26,400 S.F. OFFICE/WAREHOUSE SPACE
- 3,628 S.F. PROF. OFFICE BLDG.

NOTE: ALL QUANTITIES ARE APPROXIMATE, BASED ON ASSUMED BOUNDARY, TOPOGRAPHIC AND PHYSICAL FEATURES INFORMATION. LANDSCAPING IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.

Parking Calculations

	Formula	Qty.	Required
Bank	1 per 250 s.f.	3,574 s.f.	14
Convenience Store	1 per 250 s.f.	3910 s.f.	16
Retail	1 per 200 s.f.	*29,358 s.f.	147
Office**	1 per 250 s.f.	11,428 s.f.	45
Mini-Storage & Climate Storage	1 per 100 Units & 2 per caretaker residence	236 Units & 1 res.	4
Restaurant	1 per 250	7,777 s.f.	31
Warehouse	1 per 2 employees	T.B.D.	-

TOTAL PARKING PROVIDED: 355

EXHIBIT
1j

* BASED ON NET AREA EQUAL TO 80% OF GROSS AREA
** INCLUDES PROF. OFFICE AND 1/2 S.F. OF OFFICE/WAREHOUSE

(Calculations are approximate, may change with final site plan)

SEPTEMBER 22, 2004
REVISED DECEMBER 28, 2005
REVISED MARCH 14, 2006

Job # 2004085-000.00
LFV Drawing # 15818W

LANDMARK DESIGN GROUP
Engineers • Planners • Surveyors
Landscape Architects • Environmental Consultants
4029 IRONBOUND ROAD SUITE 100
WILLIAMSBURG, VIRGINIA
(757) 253-2075 FAX: (757) 229-0049

Rev.	Date	Description	Revised

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
Phone: (757) 253-0040
Fax: (757) 220-8994
www.aesva.com
Hampton Roads | Central Virginia | Middle Peninsula

HAZELWOOD FARM
EXHIBIT INDEX

STONEHOUSE DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts:	JAG
Project Number:	W10325-01
Scale: 1"=300'	Date: 2/7/19
Sheet Title:	OVERALL EXHIBITS
Sheet Number	2

Rev.	Date	Description	Revised

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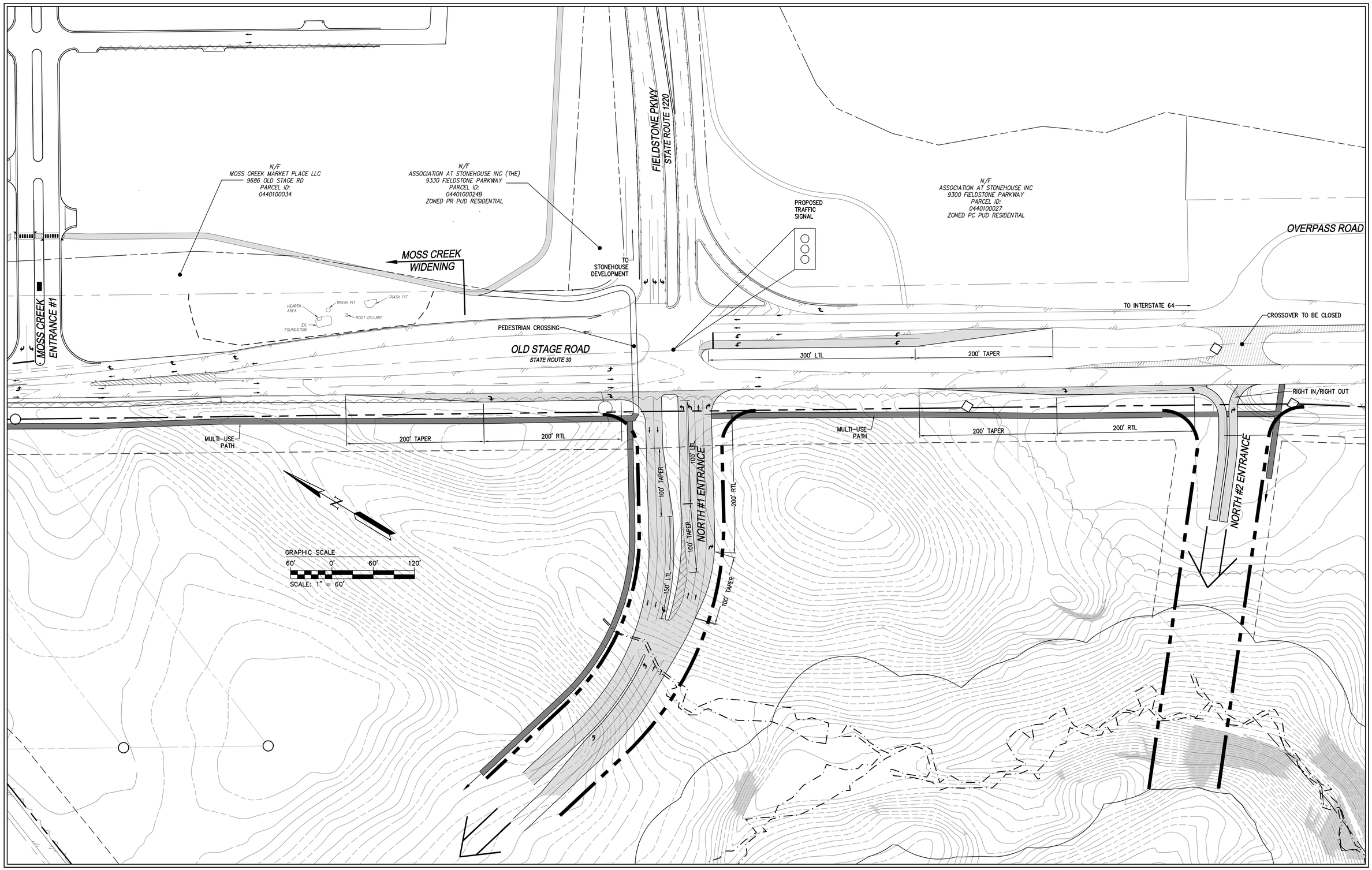
Hampton Roads | Central Virginia | Middle Peninsula

NORTH HAZELWOOD FARM LAND USE PLAN

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	W10325-01
Scale: 1"=100'	Date: 2/7/19
Sheet Title: NORTH EXHIBIT	
Sheet Number 2a	



Rev.	Date	Description	Revised By

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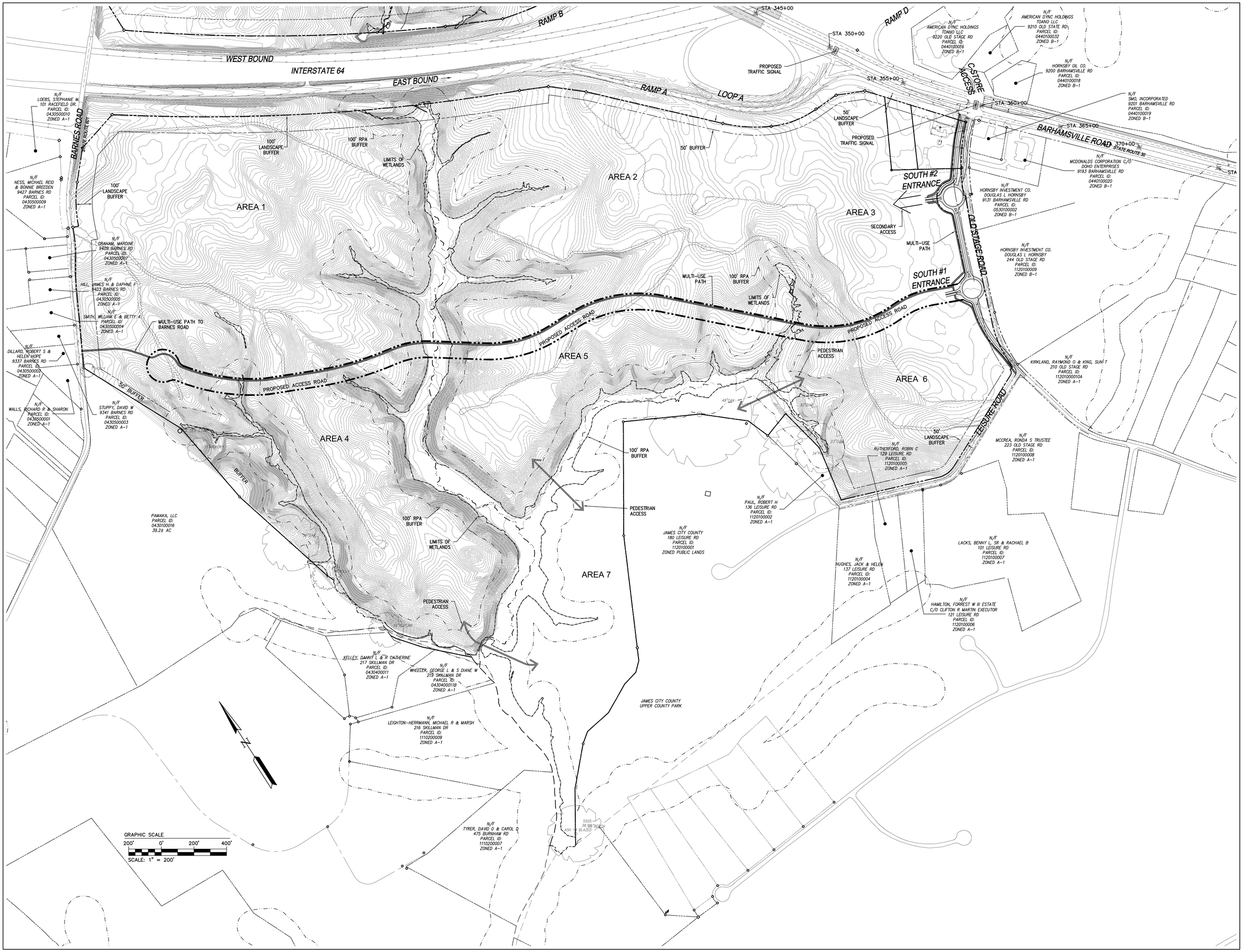
NORTH HAZELWOOD FARM
ACCESS PLAN

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	W10325-01
Scale: 1"=60'	Date: 2/7/19
Sheet Number	
NORTH EXHIBIT 2b	



Rev.	Date	Description	Revised By

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Phone: (757) 220-9160
Fax: (757) 220-8994
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Hampton Roads | Central Virginia | Middle Peninsula

SOUTH HAZELWOOD FARM LAND USE PLAN

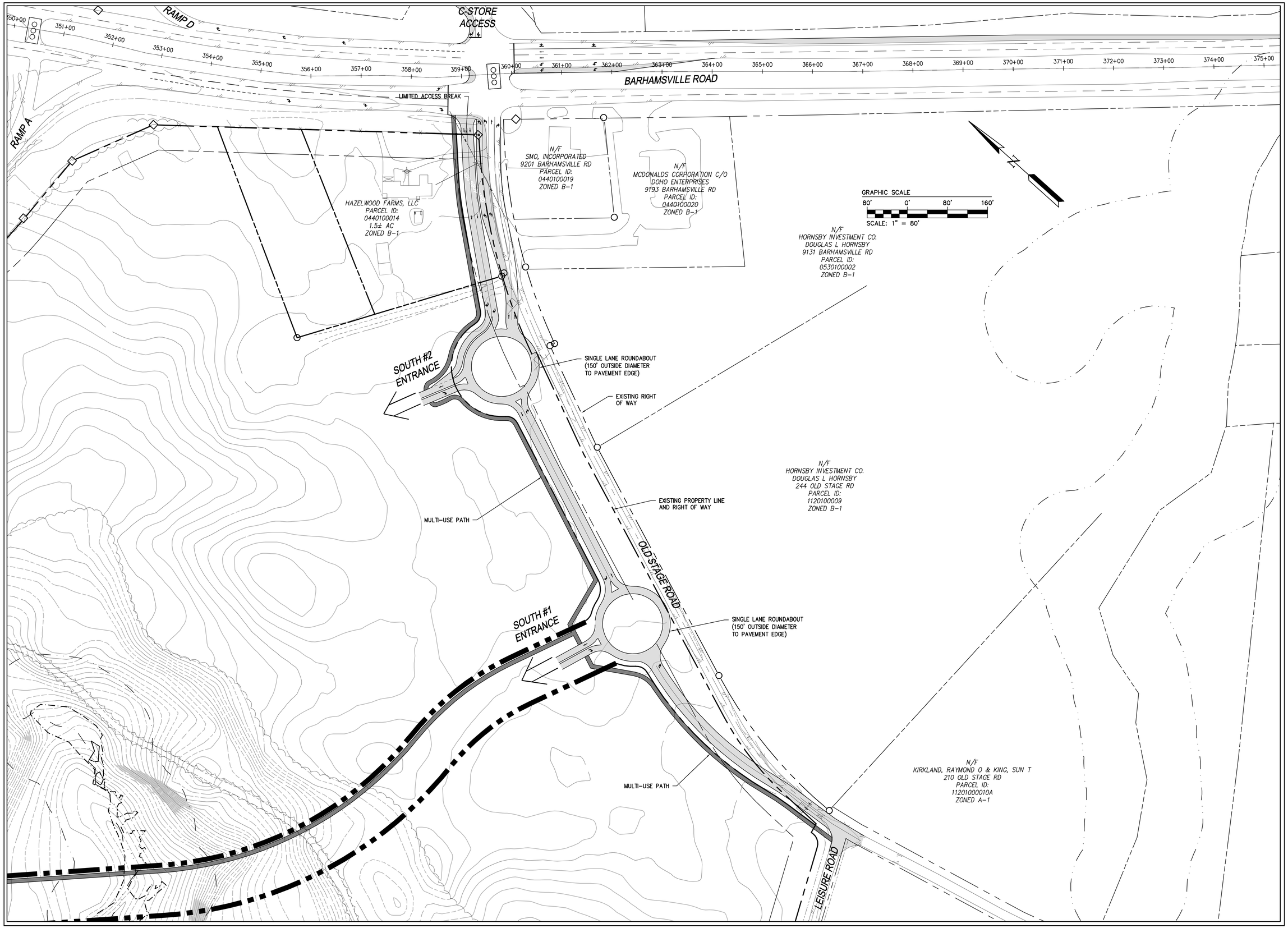
JAMES CITY COUNTY VIRGINIA

STONEHOUSE DISTRICT

Project Contacts:	JAG
Project Number:	W10325-01
Scale: 1"=200'	Date: 2/7/19

Sheet Title: SOUTH EXHIBIT

Sheet Number 2c



Rev.	Date	Description	Revised By

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Fax: (757) 220-8994
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SOUTH HAZELWOOD FARM ACCESS PLAN

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	W10325-01
Scale: 1"=80'	Date: 2/7/19

Sheet Title:

SOUTH EXHIBIT

Sheet Number

2d

GRAPHIC SCALE
60' 0' 60' 120'
SCALE: 1" = 60'

N/F
AMERICAN DYNC HOLDINGS
TOANO LLC
9220 OLD STAGE RD
PARCEL ID:
0440100016
ZONED B-1

N/F
AMERICAN DYNC HOLDINGS
TOANO LLC
9210 OLD STAGE RD
PARCEL ID:
0440100032
ZONED B-1

N/F
HORNSBY OIL CO.
DOUGLAS L HORNSBY
9200 BARHAMSVILLE RD
PARCEL ID:
0440100018
ZONED B-1

SIGNALIZED
INTERSECTION
STA 359+58

BEGIN LANE
STA 370+06

1000' ADD ON LANE

660' TAPER

BEGIN TAPER
STA 376+67

C-STORE
ACCESS

358+00 359+00 360+00 361+00 362+00 363+00 364+00 365+00 366+00 367+00 368+00 369+00 370+00 371+00 372+00 373+00 374+00 375+00 376+00 377+00

BARHAMSVILLE ROAD STATE ROUTE 30

EXISTING SIGNAL

N/F
SMO, INCORPORATED
9201 BARHAMSVILLE RD
PARCEL ID:
0440100019
ZONED B-1

N/F
MCDONALDS CORPORATION C/O
DOHO ENTERPRISES
9193 BARHAMSVILLE RD
PARCEL ID:
0440100020
ZONED B-1

HAZELWOOD FARMS, LLC
PARCEL ID:
0440100014
1.5± AC
ZONED B-1

N/F
HORNSBY INVESTMENT CO.
DOUGLAS L HORNSBY
9131 BARHAMSVILLE RD
PARCEL ID:
0530100002
ZONED B-1

MULTI-USE PATH

OLD STAGE ROAD

Rev.	Date	Description	Revised By

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Williamsburg, Virginia 23188
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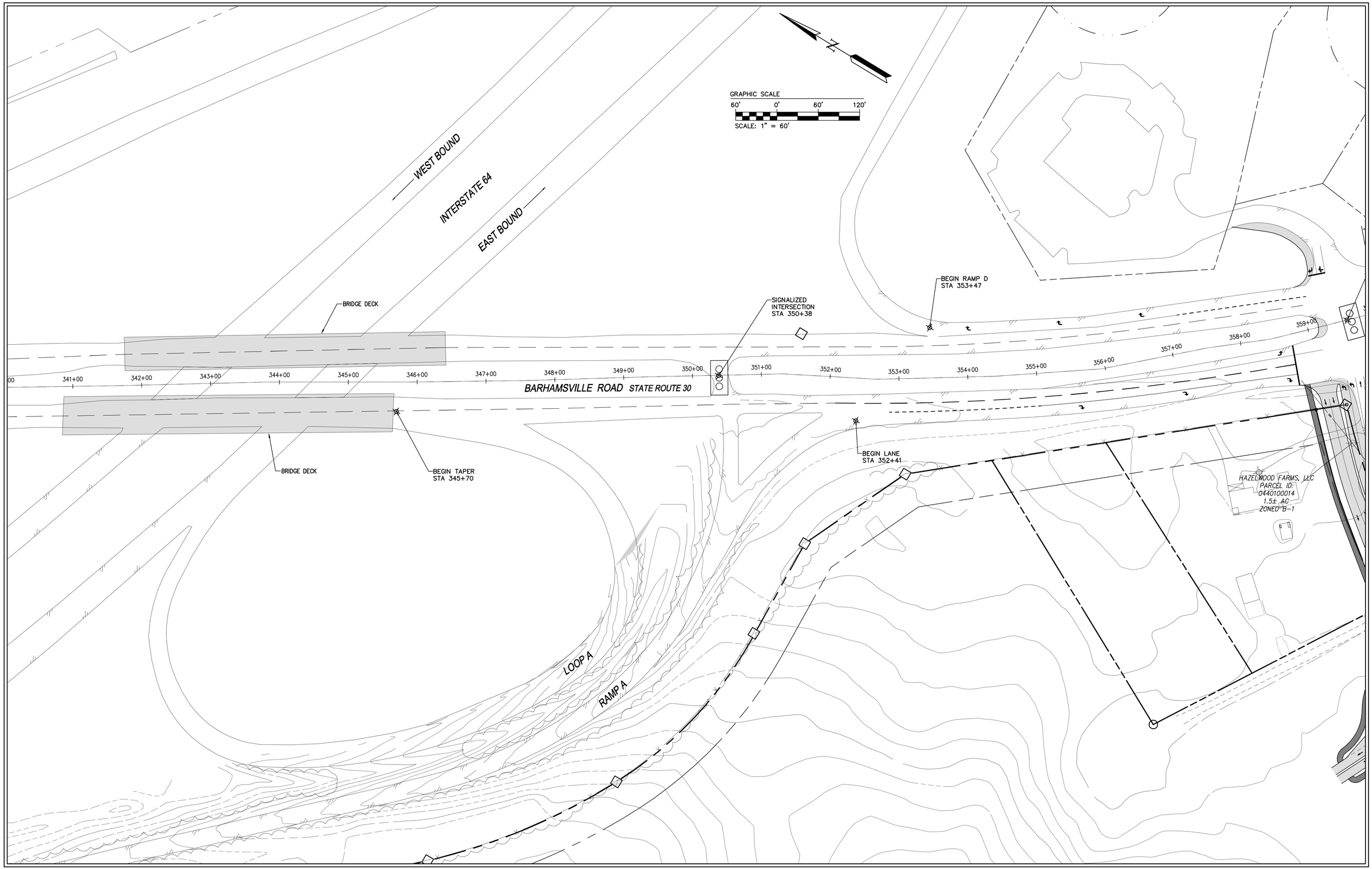
www.aesva.com
Hampton Roads | Central Virginia | Middle Peninsula

SOUTH HAZELWOOD FARM ACCESS PLAN

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	W10325-01
Scale: 1"=60'	Date: 2/7/19
Sheet Number	
SOUTH EXHIBIT 2e	



Rev.	Date	Description	Revised By

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Fax: (757) 220-8994
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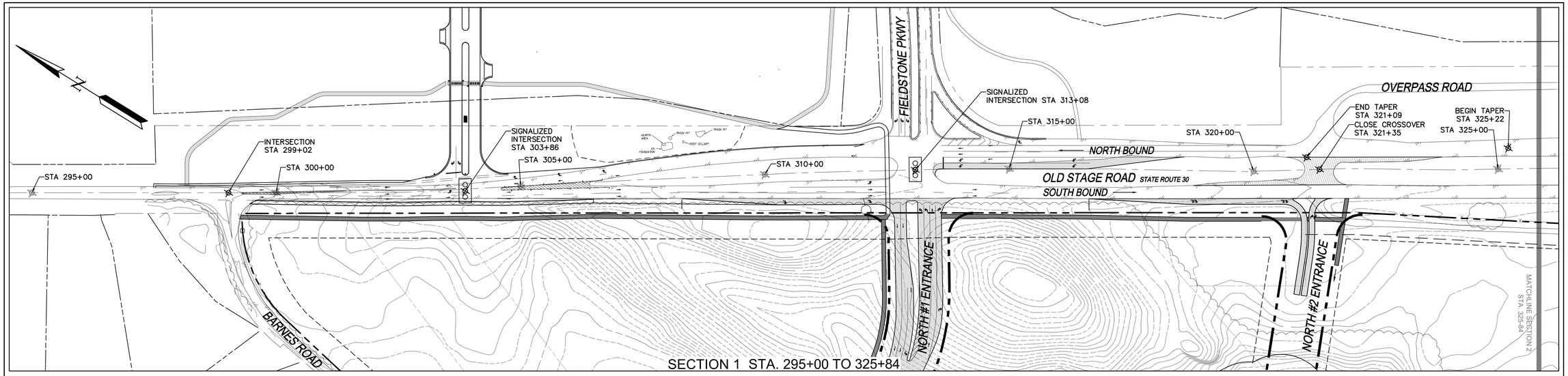
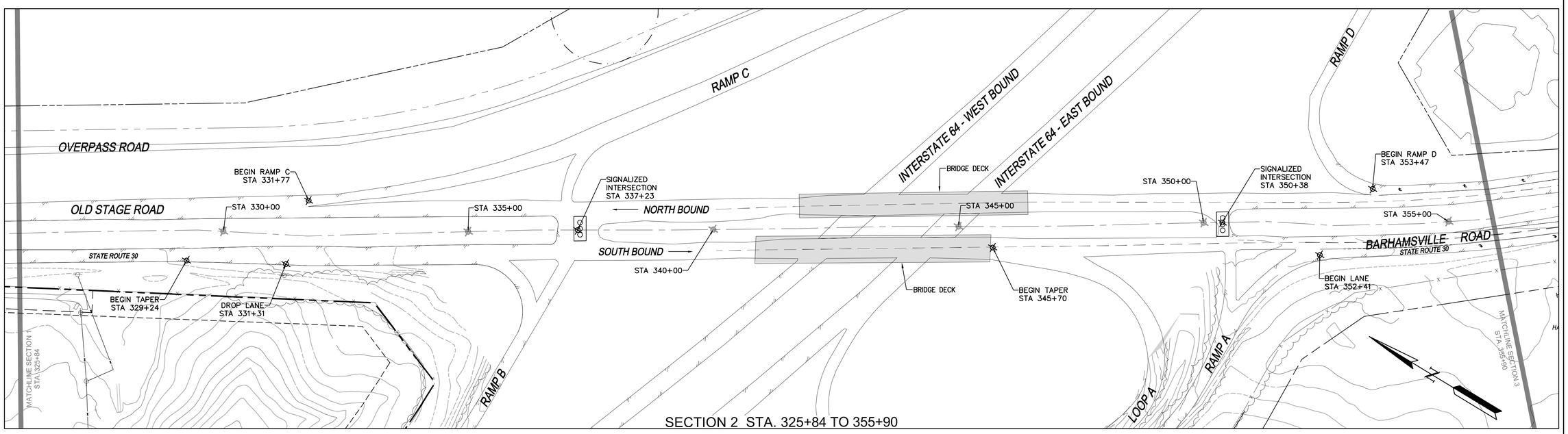
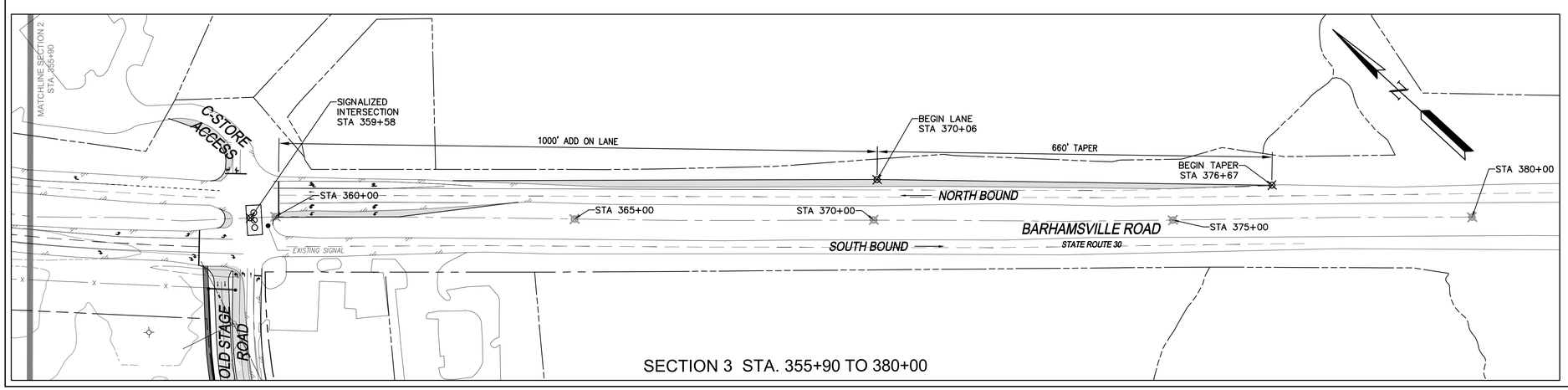
SOUTH HAZELWOOD FARM ACCESS PLAN

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	JAG
Project Number:	W10325-01
Scale: 1"=60'	Date: 2/7/19
Sheet Number	
SOUTH EXHIBIT 2f	







GRAPHIC SCALE
100' 0' 100' 200'
SCALE: 1" = 100'

Rev.	Date	Description	Revised By

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HAZELWOOD FARM RT. 30 STATIONING

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

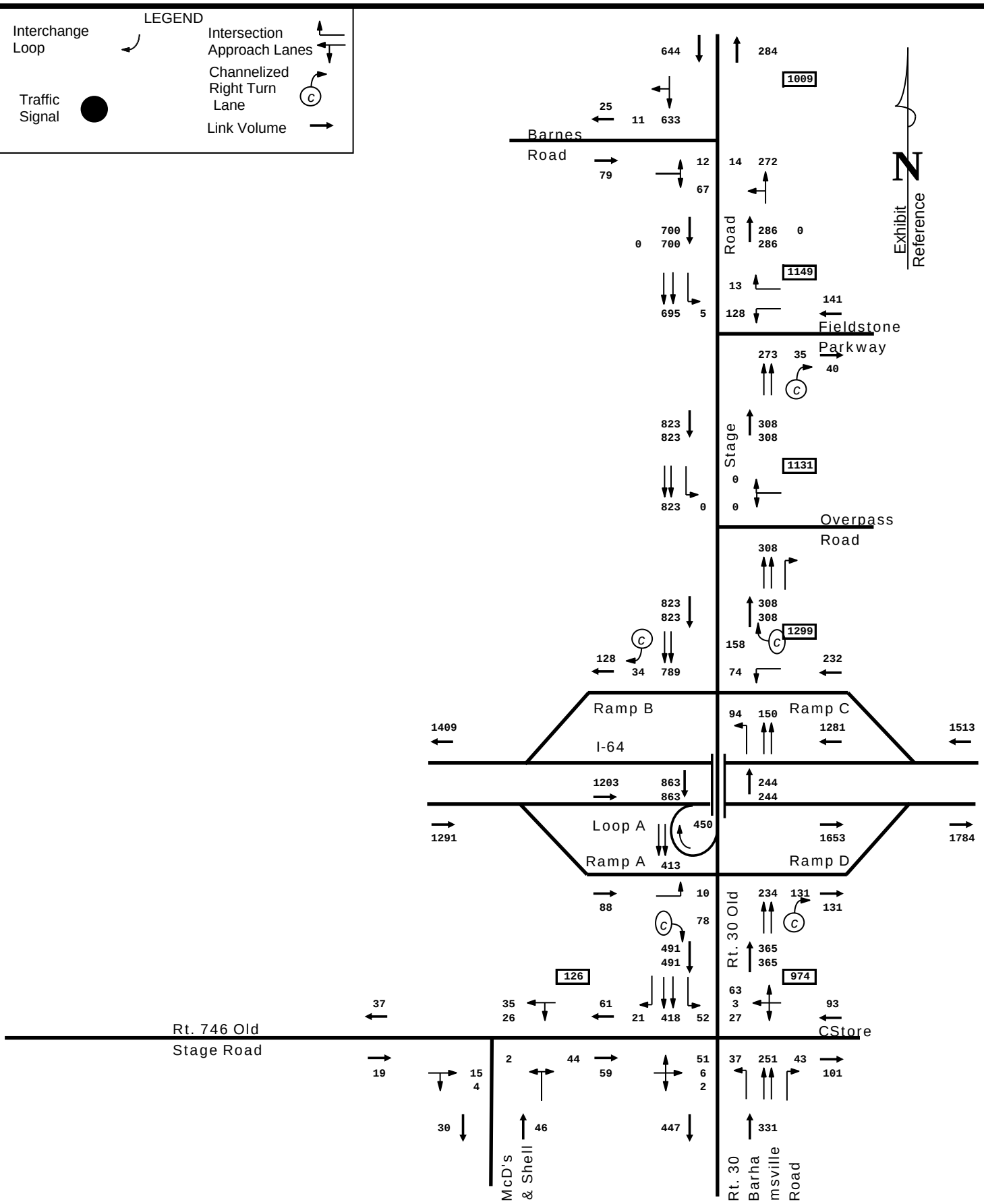
Project Contacts:	JAG
Project Number:	W10325-01
Scale: 1"=100'	Date: 2/7/19

Sheet Title:

ROUTE 30 EXHIBIT

Sheet Number

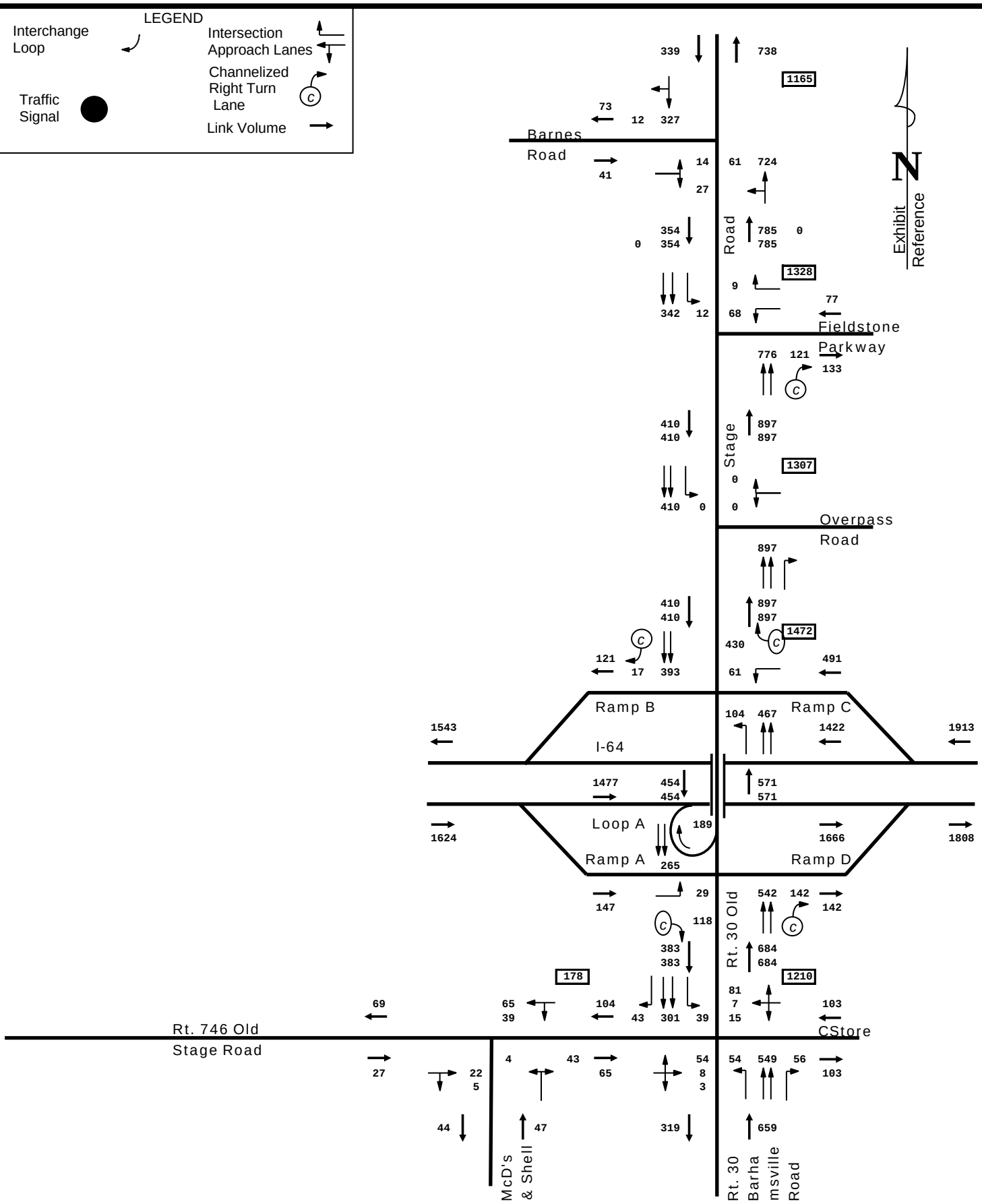
2g



2017 AM PEAK HOUR COUNTS WITH BALANCE

DRW Consultants, LLC
804-794-7312

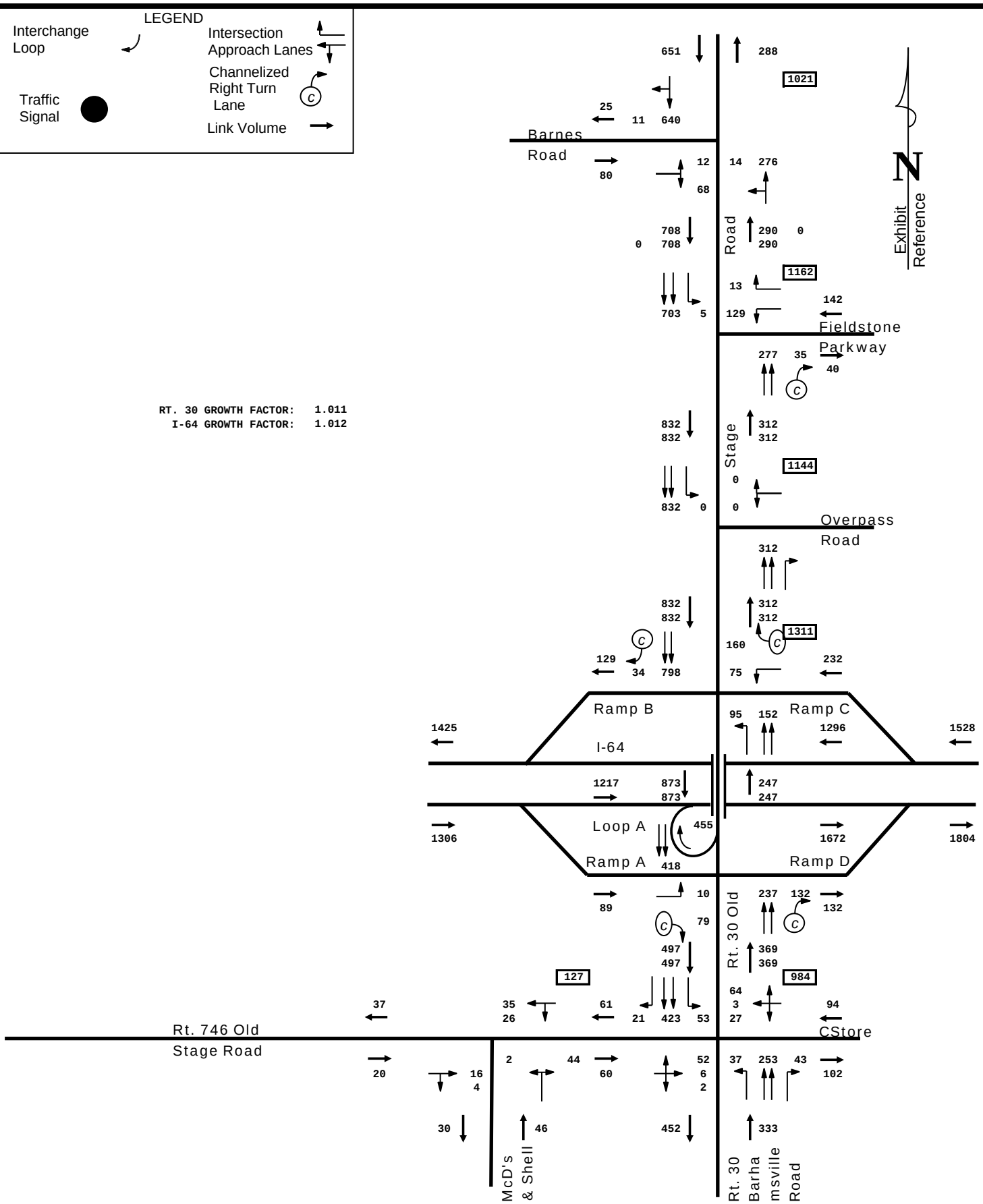
Exhibit 3a



2017 PM PEAK HOUR COUNTS WITH BALANCE

DRW Consultants, LLC
804-794-7312

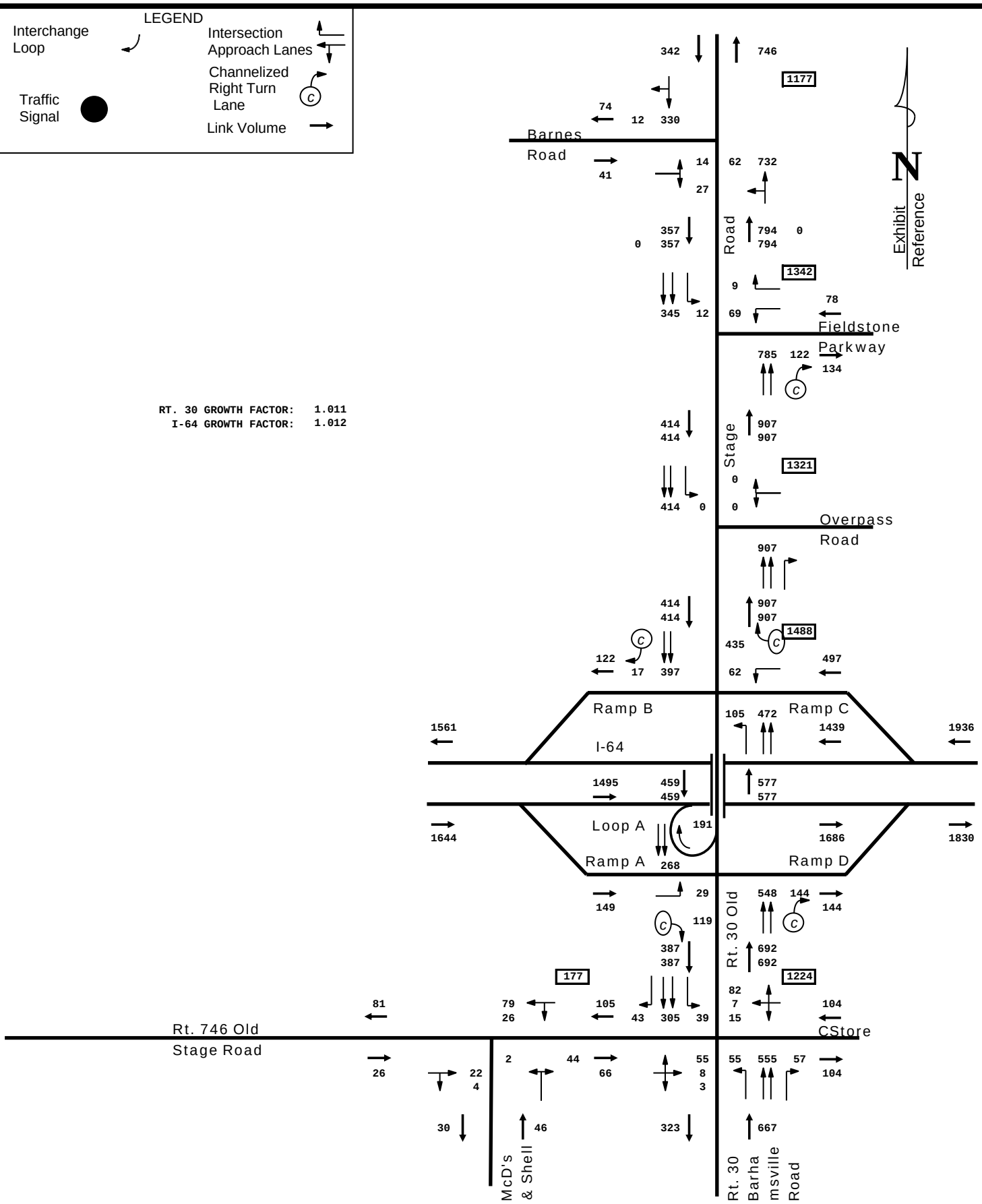
Exhibit 3b



2018 AM PEAK HOUR COUNTS

DRW Consultants, LLC
804-794-7312

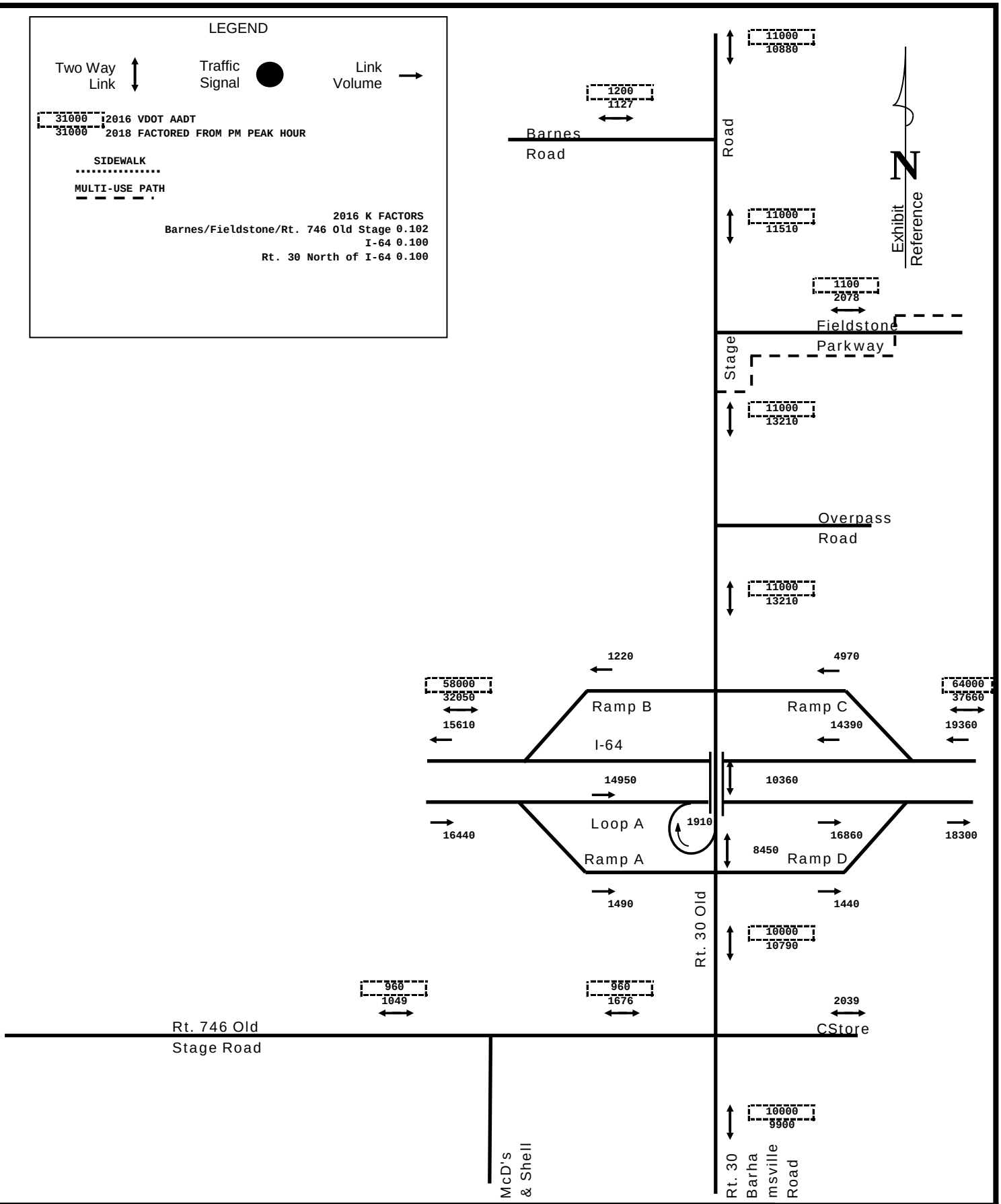
Exhibit 4a



2018 PM PEAK HOUR COUNTS

DRW Consultants, LLC
804-794-7312

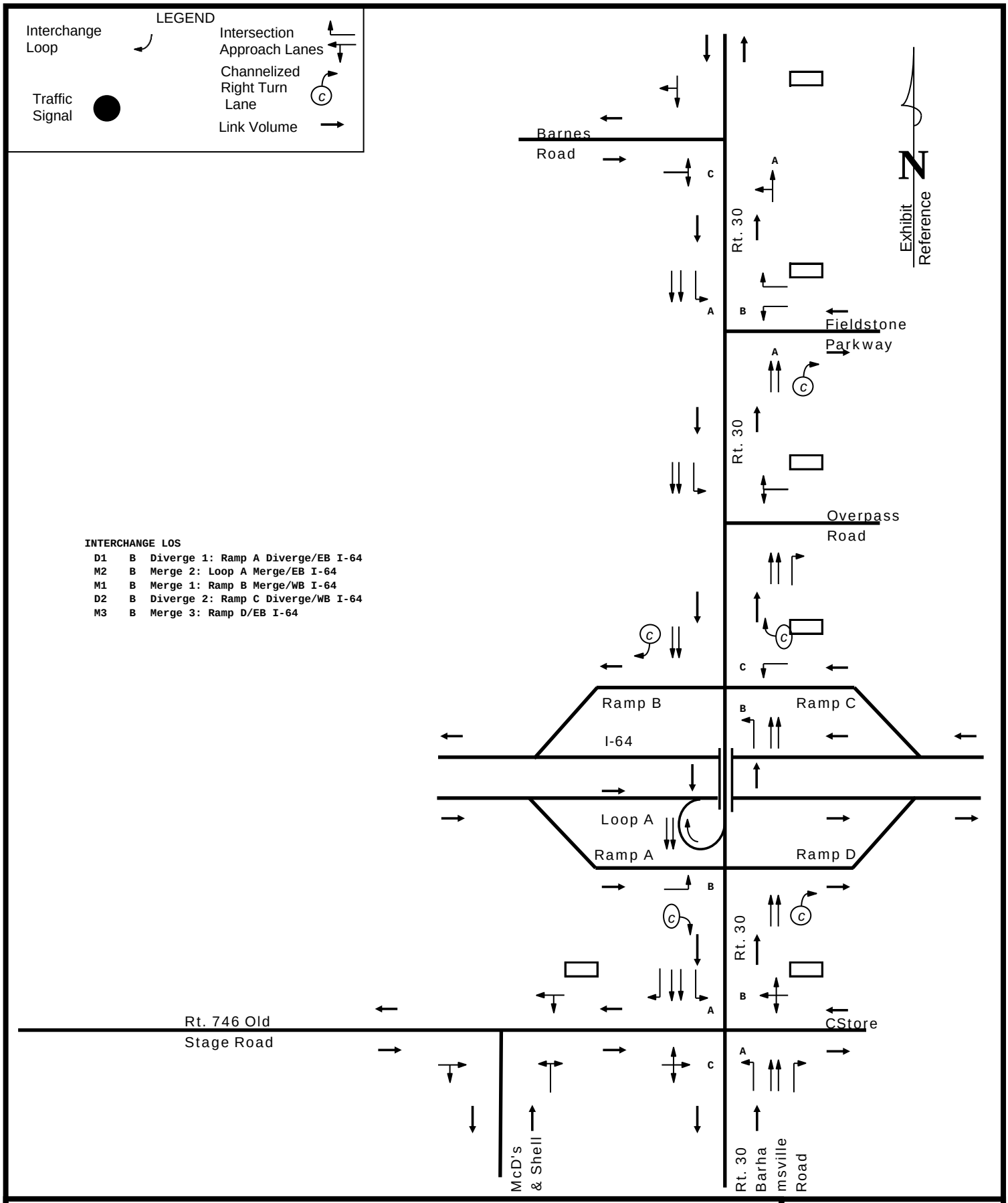
Exhibit 4b



2018 DAILY TRAFFIC
EXISTING SIDEWALKS, MULTI-USE (VDOT SHARED USE PATH), TRANSIT

DRW Consultants, LLC
804-794-7312

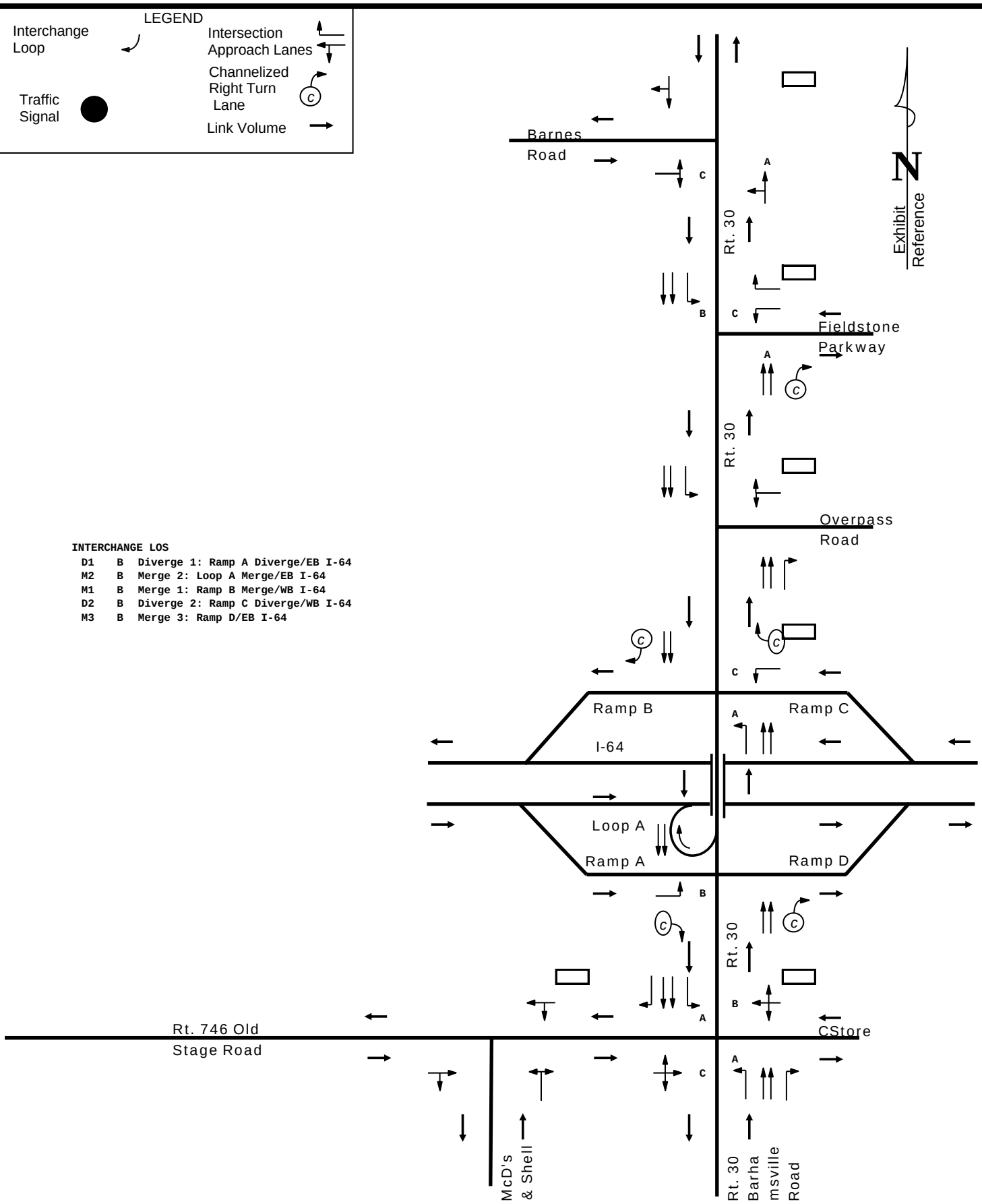
Exhibit 4c



2018 AM PEAK HOUR LEVEL OF SERVICE

DRW Consultants, LLC
804-794-7312

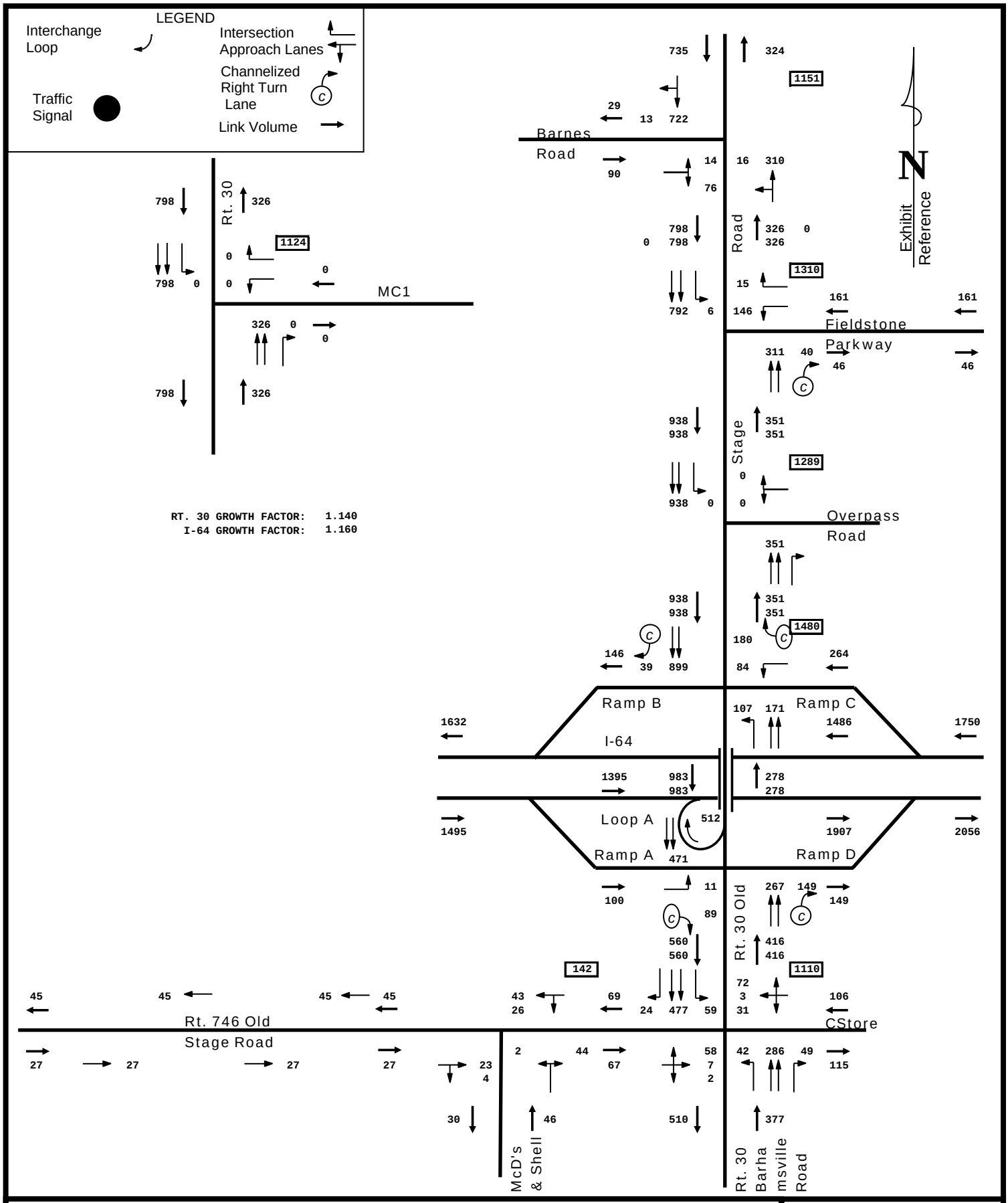
Exhibit 4d



2018 PM PEAK HOUR LEVEL OF SERVICE

DRW Consultants, LLC
804-794-7312

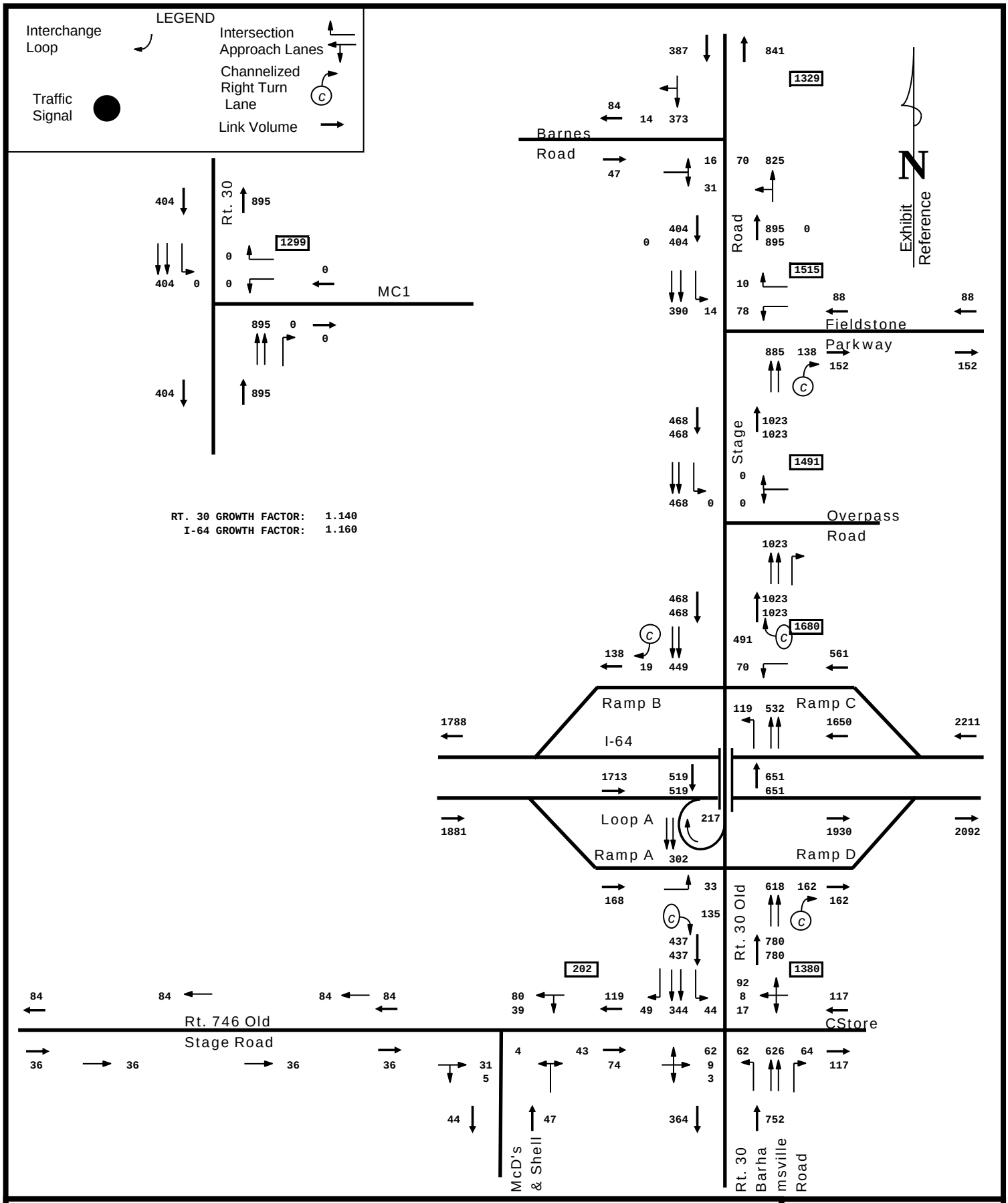
Exhibit 4e



2030 AM PEAK HOUR BACKGROUND TRAFFIC
GROWTH FACTOR ONLY

DRW Consultants, LLC
804-794-7312

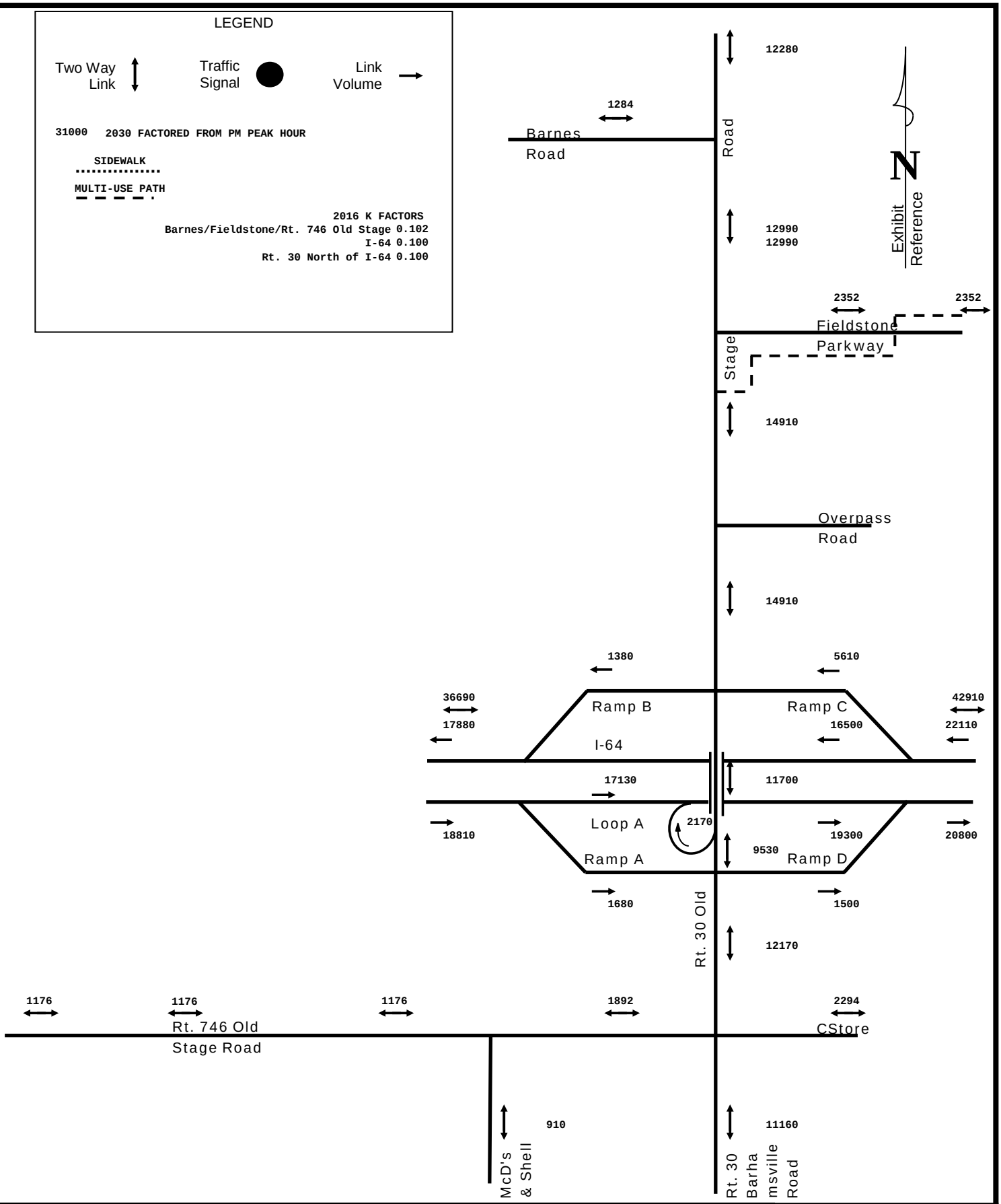
Exhibit 5a



2030 PM PEAK HOUR BACKGROUND TRAFFIC
GROWTH FACTOR ONLY

DRW Consultants, LLC
804-794-7312

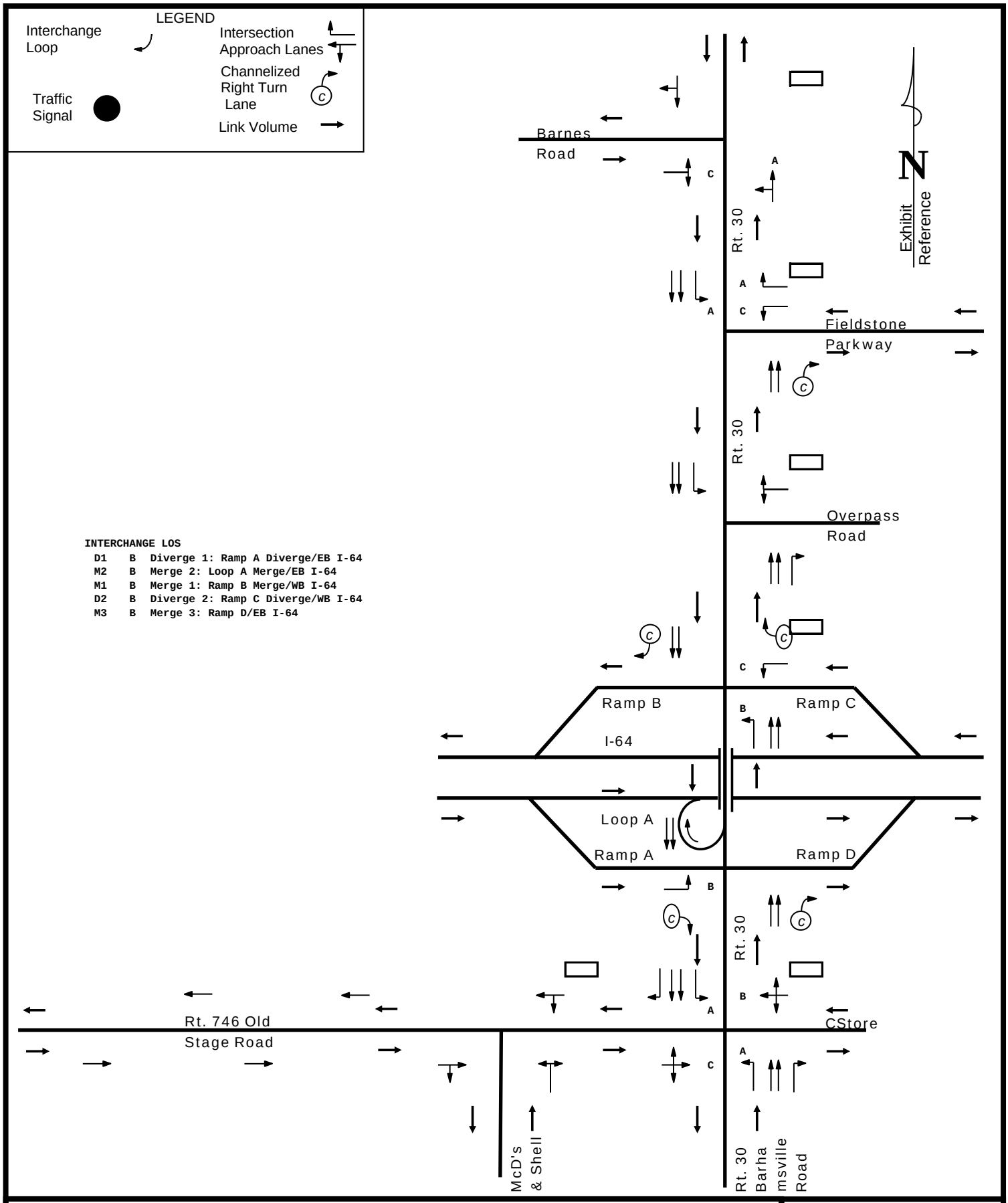
Exhibit 5b



2030 DAILY TRAFFIC GROWTH FACTOR ONLY
EXISTING SIDEWALKS, MULTI-USE (VDOT SHARED USE PATH), TRANSIT

DRW Consultants, LLC
804-794-7312

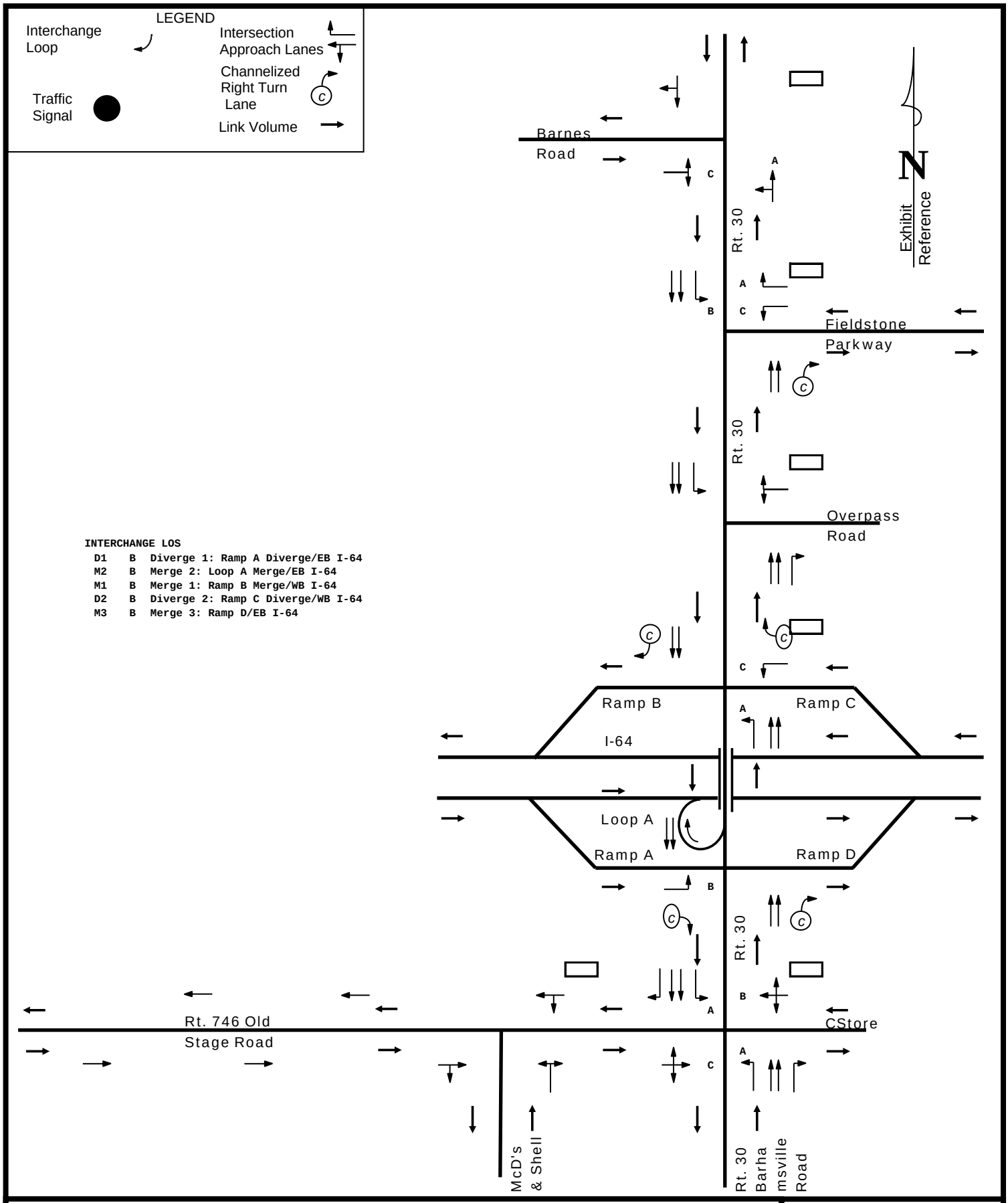
Exhibit 5c



2030 AM PEAK HOUR LEVEL OF SERVICE
BACKGROUND GROWTH FACTOR ONLY

DRW Consultants, LLC
804-794-7312

Exhibit 5d



2030 PM PEAK HOUR LEVEL OF SERVICE
BACKGROUND GROWTH FACTOR ONLY

DRW Consultants, LLC
804-794-7312

Exhibit 5e

VALUE	LAND USE	LAND USE CODE	SQ.FT., OTHER UNITS	WEEKDAY TRIP GENERATION AM PEAK HOUR Enter	Exit	Total	PM PEAK HOUR Enter	Exit	Total	DAILY
Table 1: North Hazelwood Farms Trip Generation										
eq.-adj. st.	Shopping Center	820	375,000 sq. ft.	210	129	339	694	751	1445	14769
eq.-adj. st.	Gen. Office Building	710	135,000 sq. ft.	132	21	153	24	127	151	1420
TOTAL TRIPS				342	150	492	718	878	1596	16189
Internal Capture Trips (PM on Exhibit 8-4)			2.63%	7	7	14	21	21	42	426
% Shopping Center Pass By Trips:			27 %	34	34	68	187	187	374	3987
All Primary Trips				301	109	410	510	670	1180	11776

Table 2: North Hazelwood Farms Primary Trip Distribution K Factor: 0.09859

	AM Peak Hour Entering Traffic		AM Peak Hour Exiting Traffic		PM Peak Hour Entering Traffic		PM Peak Hour Exiting Traffic	
Direction	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips
North Rt. 30	15%	46	15%	16	15%	77	15%	101
East I-64	30%	90	30%	33	30%	153	30%	201
South Rt. 30	25%	75	25%	27	25%	128	25%	168
West I-64	30%	90	30%	33	30%	152	30%	200
	100%	301	100%	109	100%	510	100%	670

Table 3: North Hazelwood Farms Pass By Trip Distribution

	AM Peak Hour Entering Traffic		AM Peak Hour Exiting Traffic		PM Peak Hour Entering Traffic		PM Peak Hour Exiting Traffic	
Direction	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips
North Rt. 30	798	21	326	8	404	50	895	110
East Fieldstone	161	4	46	1	88	11	152	19
South Rt. 30	351	9	938	25	1023	126	468	58
	1310	34	1310	34	1515	187	1515	187

VALUE	LAND USE	LAND USE CODE	SQ.FT., OTHER UNITS	AM PEAK HOUR Enter	Exit	Total	PM PEAK HOUR Enter	Exit	Total	DAILY
Table 4: South Hazelwood Farms Trip Generation										
eq.-adj. st.	Warehousing	150	2,920,000 sq. ft.	290	86	376	102	276	378	4659
eq.-adj. st.	Shopping Center	820	75,000 sq. ft.	117	72	189	211	228	439	4944
eq.-adj. st.	Multifamily Mid Rise	221	300 units	26	74	100	77	50	127	1633
TOTAL TRIPS				433	232	665	390	554	944	11236
Internal Capture Trips (PM on Exhibit 8-5)			11.86%	40	40	80	56	56	112	1333
% Shopping Center Pass By Trips:			42 %	30	30	60	88	88	176	2076
All Primary Trips				363	162	525	246	410	656	7827

Table 5: South Hazelwood Farms Primary Trip Distribution K Factor: 0.08402

	AM Peak Hour Entering Traffic		AM Peak Hour Exiting Traffic		PM Peak Hour Entering Traffic		PM Peak Hour Exiting Traffic	
Direction	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips
North Rt. 30	10%	36	10%	16	10%	25	10%	41
East I-64	25%	91	25%	41	25%	62	25%	103
South Rt. 30	37%	134	37%	60	37%	91	37%	152
West Rt. 746	3%	11	3%	5	3%	7	3%	12
West I-64	25%	91	25%	40	25%	61	25%	102
	100%	363	100%	162	100%	246	100%	410

Table 6: South Hazelwood Farms Pass By Trip Distribution

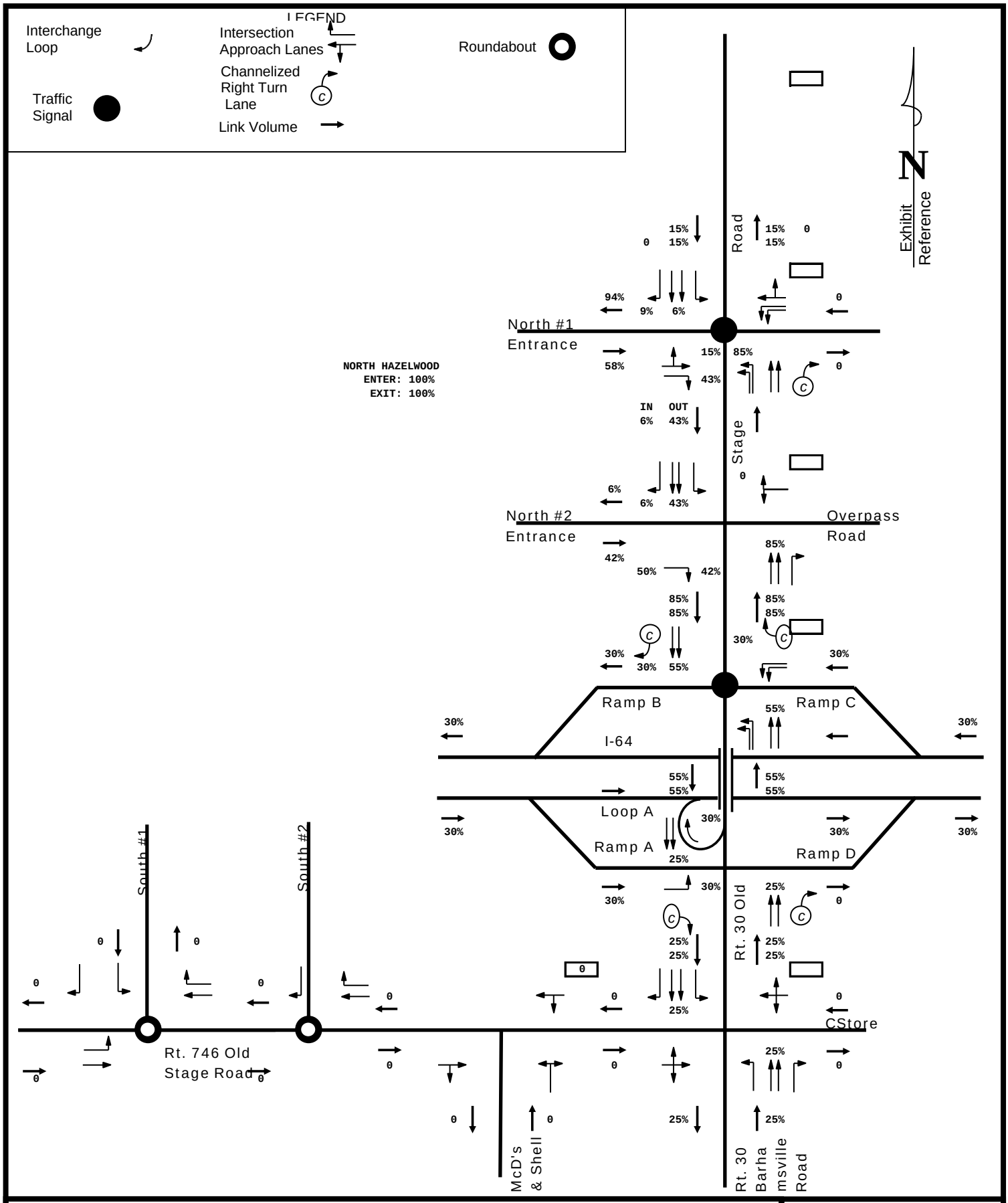
	AM Peak Hour Entering Traffic		AM Peak Hour Exiting Traffic		PM Peak Hour Entering Traffic		PM Peak Hour Exiting Traffic	
Direction	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips	% Dist.	Trips
North Rt. 30	477	19		11	344	31		57
South Rt. 30	286	11		19	626	57		31
	763	30		30	970	88		88

HAZELWOOD FARMS
TRIP GENERATION AND DISTRIBUTION

DRW Consultants, LLC
804-794-7312

Trip generation rates from Trip Generation Manual, 10th Edition (TGM10) by the Institute of Transportation Engineers (ITE)

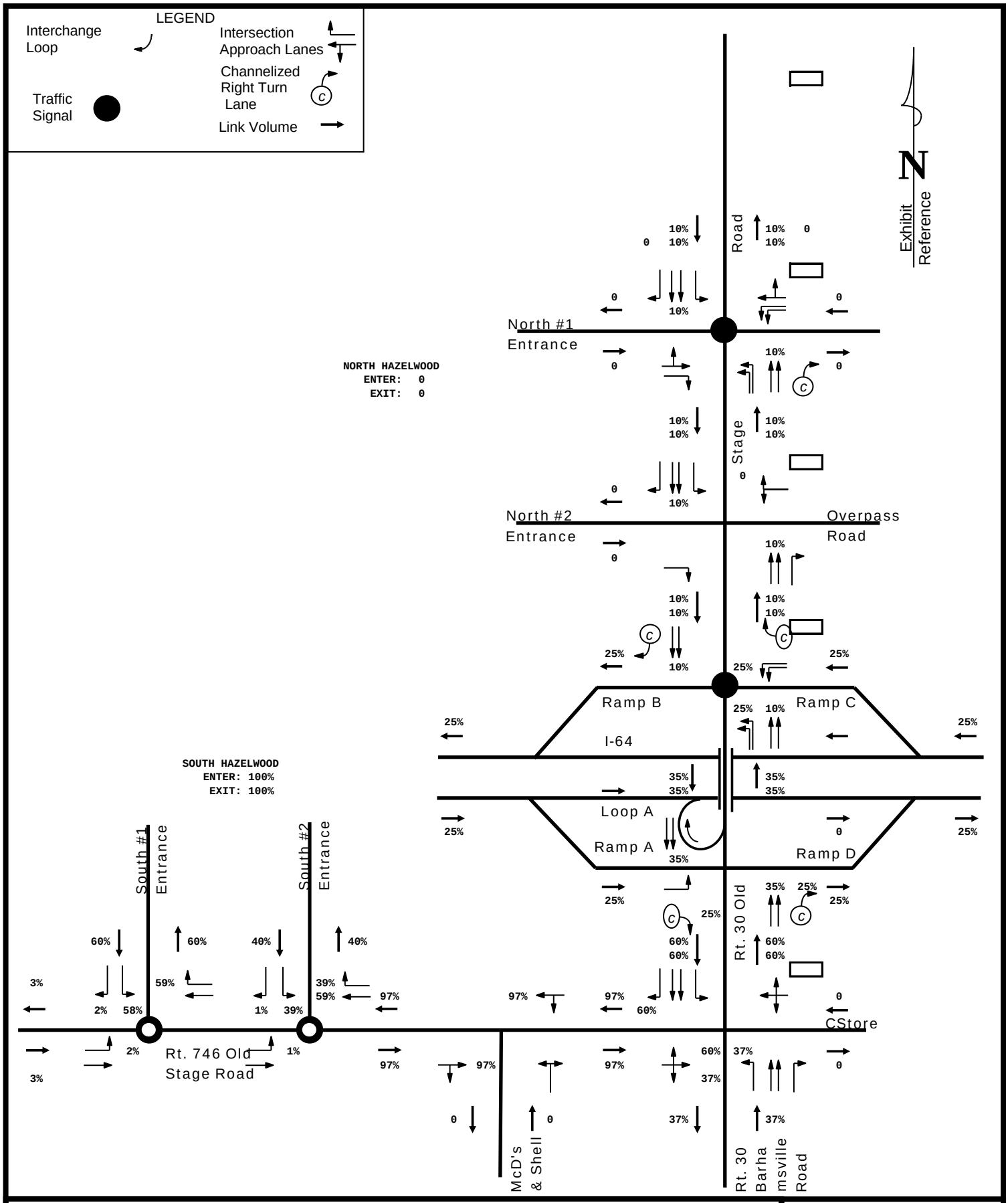
Exhibit 6-1



NORTH HAZELWOOD FARMS
PRIMARY TRIP DISTRIBUTION PERCENTAGES

DRW Consultants, LLC
804-794-7312

Exhibit 6-2



SOUTH HAZELWOOD FARMS
PRIMARY TRIP DISTRIBUTION PERCENTAGES

DRW Consultants, LLC
804-794-7312

Exhibit 6-3

Land Use A	Retail		
ITE LU Code	820		
Size	375000		
	Total	Internal	External
Enter	694	14	680
Exit	751	7	744
Total	1445	21	1424
%	100%	1%	99%

3%	23
7	
31%	7

9%	62
0	
53%	0

2%	14
14	
23%	29

12%	90
0	
31%	0

Land Use B	Office		
ITE LU Code	710		
Size	135,000		
	Total	Internal	External
Enter	24	7	17
Exit	127	14	113
Total	151	21	130
%	100%	14%	86%

0%	0	0	0%	0
2%	3	0	2%	0

Land Use C	Residential		
ITE LU Code			
Size			
	Total	Internal	External
Enter		0	0
Exit		0	0
Total	0	0	0
%	#DIV/0!	#DIV/0!	#DIV/0!

Total Trip Generation:	1596
Total Off Site Trips:	1554
Total Capture Trips:	42
% Capture Trips:	2.6%

TRIP GENERATION HANDBOOK, SECOND EDITION
PM PEAK HOUR INTERNAL CAPTURE CALCULATION
NORTH HAZELWOOD FARMS

DRW Consultants, LLC
804-794-7312

Exhibit 6-4

Land Use A	Retail		
ITE LU Code	820		
Size	75000		
	Total	Internal	External
Enter	211	23	188
Exit	228	31	197
Total	439	54	385
%	100%	12%	88%

3%	7
7	
31%	32

9%	19
19	
53%	27

2%	4
4	
23%	63

12%	27
24	
31%	24

Land Use B	Warehouse		
ITE LU Code	150		
Size	2920000		
	Total	Internal	External
Enter	102	7	95
Exit	276	6	270
Total	378	13	365
%	100%	3%	97%

0%	0	0	0%	0
2%	6	2	2%	2

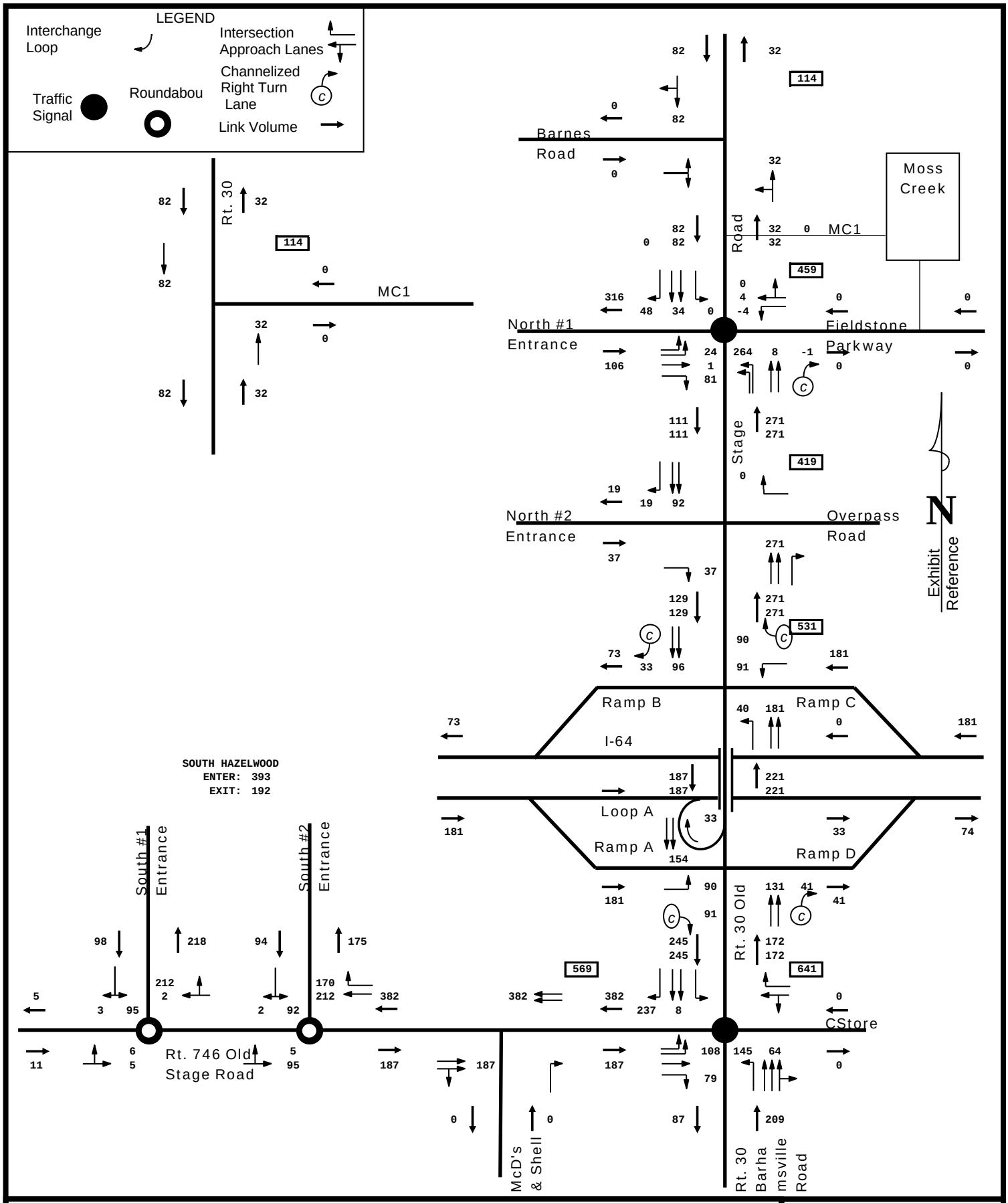
Land Use C	Residential		
ITE LU Code	221		
Size	300 DU		
	Total	Internal	External
Enter	77	26	51
Exit	50	19	31
Total	127	45	82
%	100%	35%	65%

Total Trip Generation:	944
Total Off Site Trips:	832
Total Capture Trips:	112
% Capture Trips:	11.86%

TRIP GENERATION HANDBOOK, SECOND EDITION
PM PEAK HOUR INTERNAL CAPTURE CALCULATION
SOUTH HAZELWOOD FARMS

DRW Consultants, LLC
804-794-7312

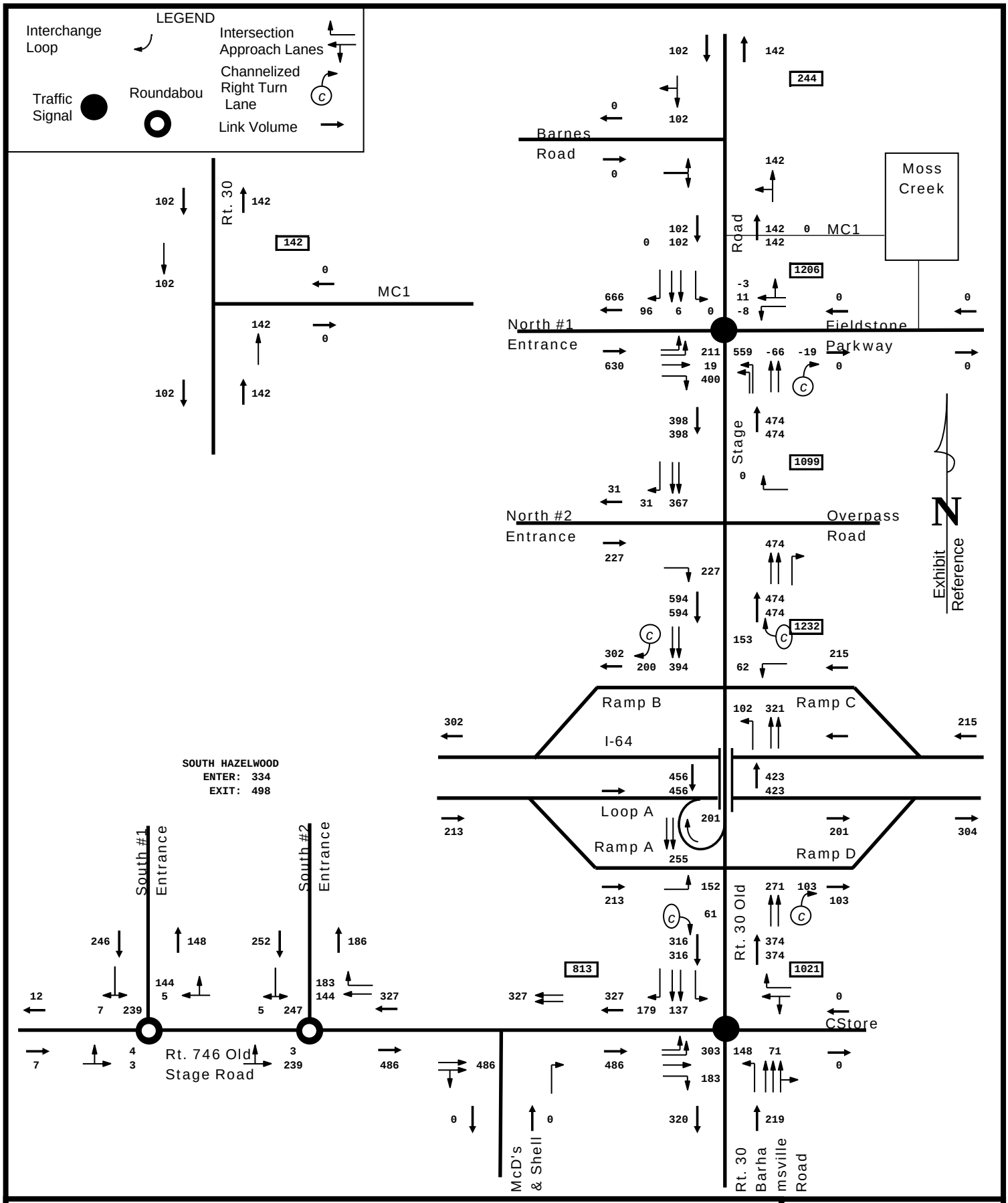
Exhibit 6-5



NORTH AND SOUTH HAZELWOOD FARMS
AM PEAK HOUR TRIPS

DRW Consultants, LLC
804-794-7312

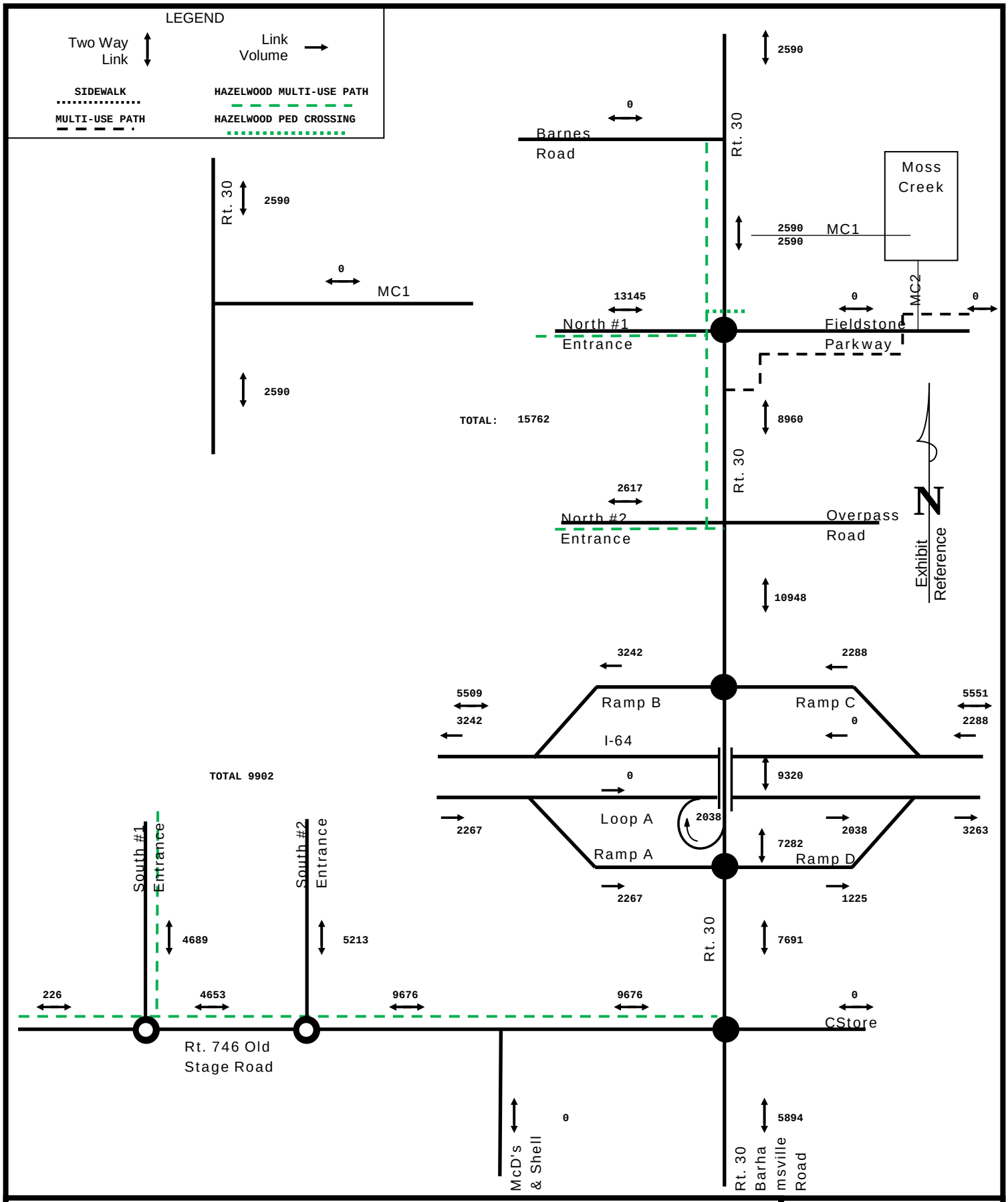
Exhibit 7a



NORTH AND SOUTH HAZELWOOD FARMS
PM PEAK HOUR TRIPS

DRW Consultants, LLC
804-794-7312

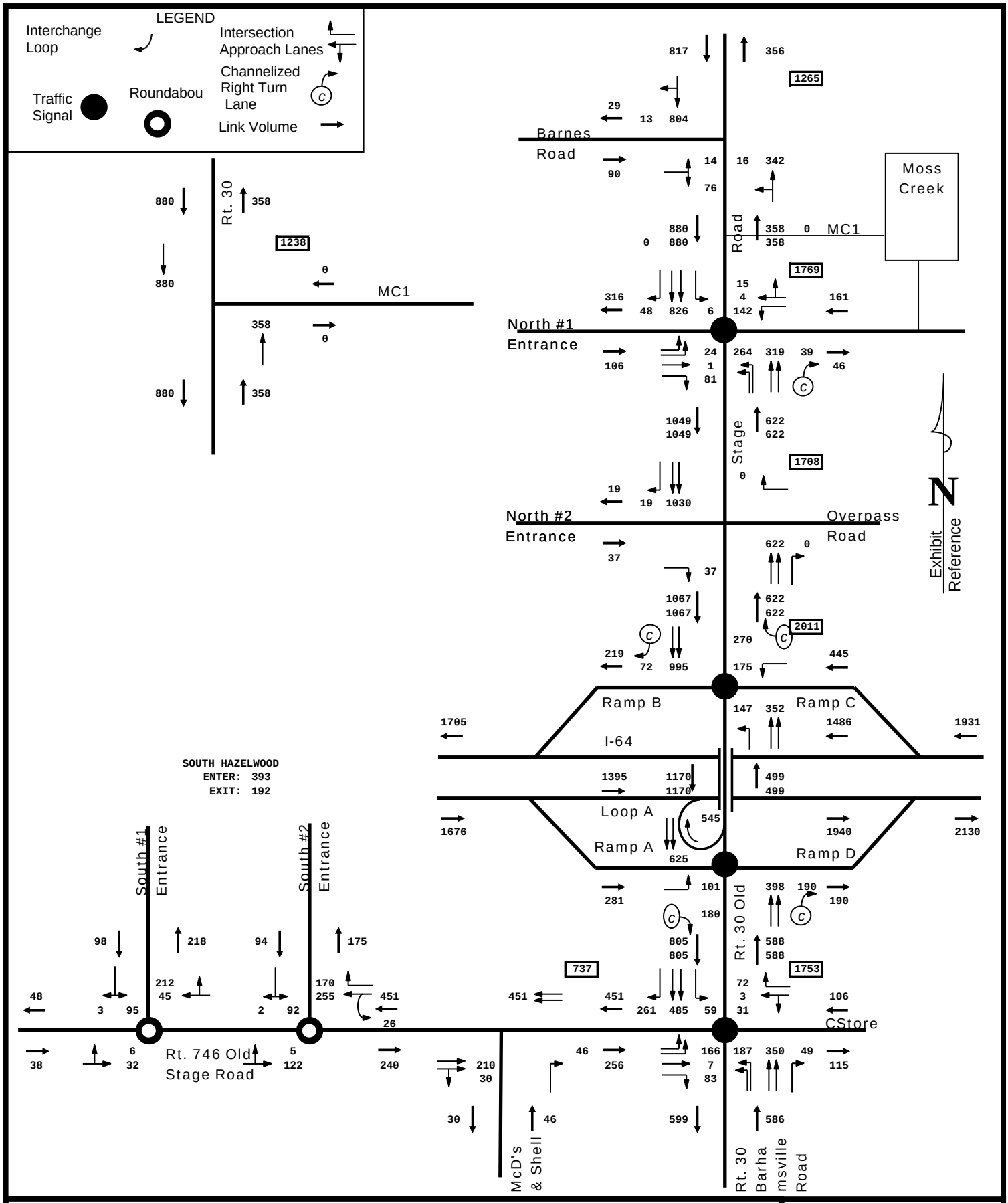
Exhibit 7b



NORTH AND SOUTH HAZELWOOD FARMS DAILY TRAFFIC
SIDEWALKS, MULTI-USE (VDOT SHARED USE PATH), TRANSIT

DRW Consultants, LLC
804-794-7312

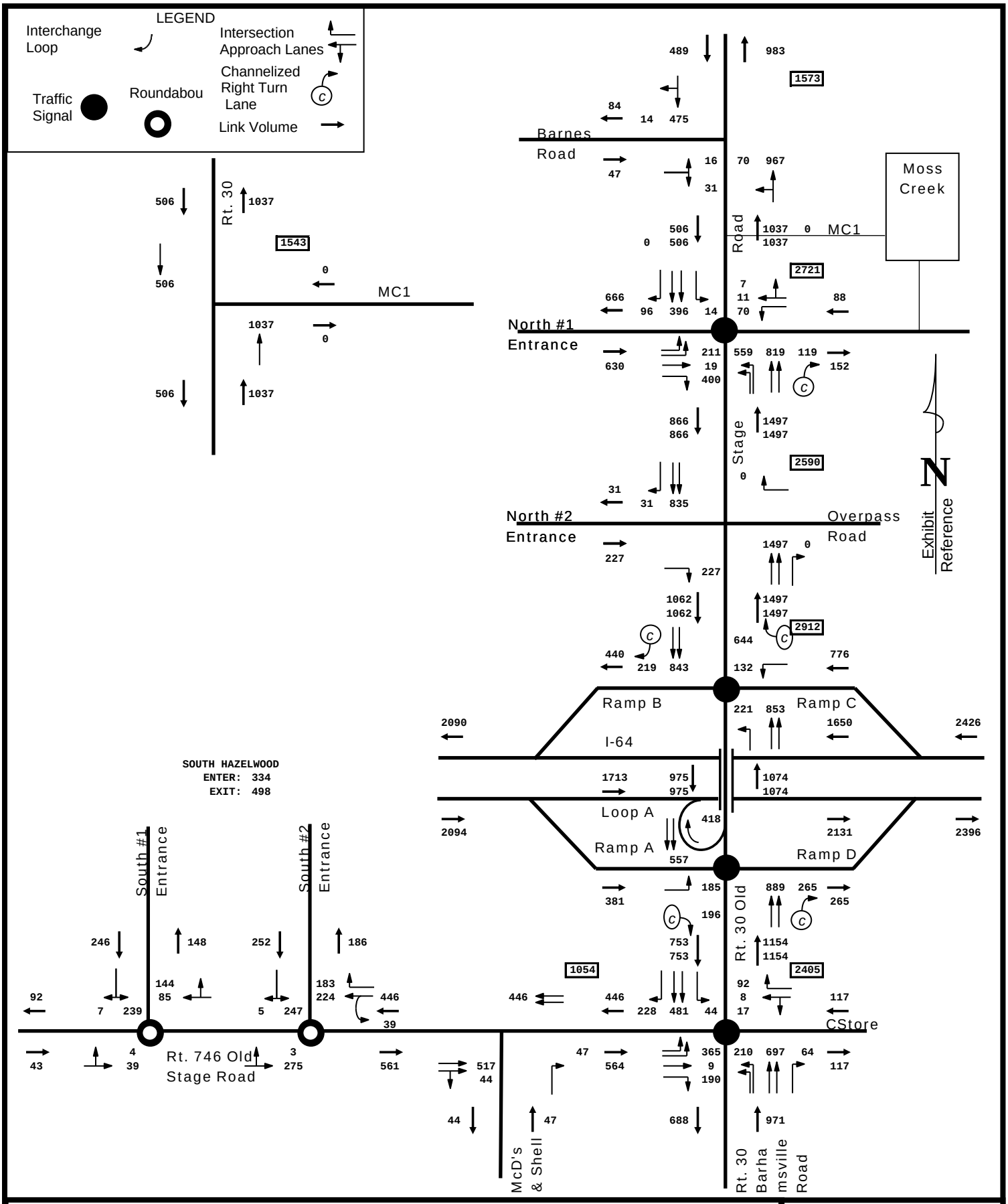
Exhibit 7c



2030 AM PEAK HOUR TOTAL TRAFFIC WITH HAZELWOOD FARMS

DRW Consultants, LLC
804-794-7312

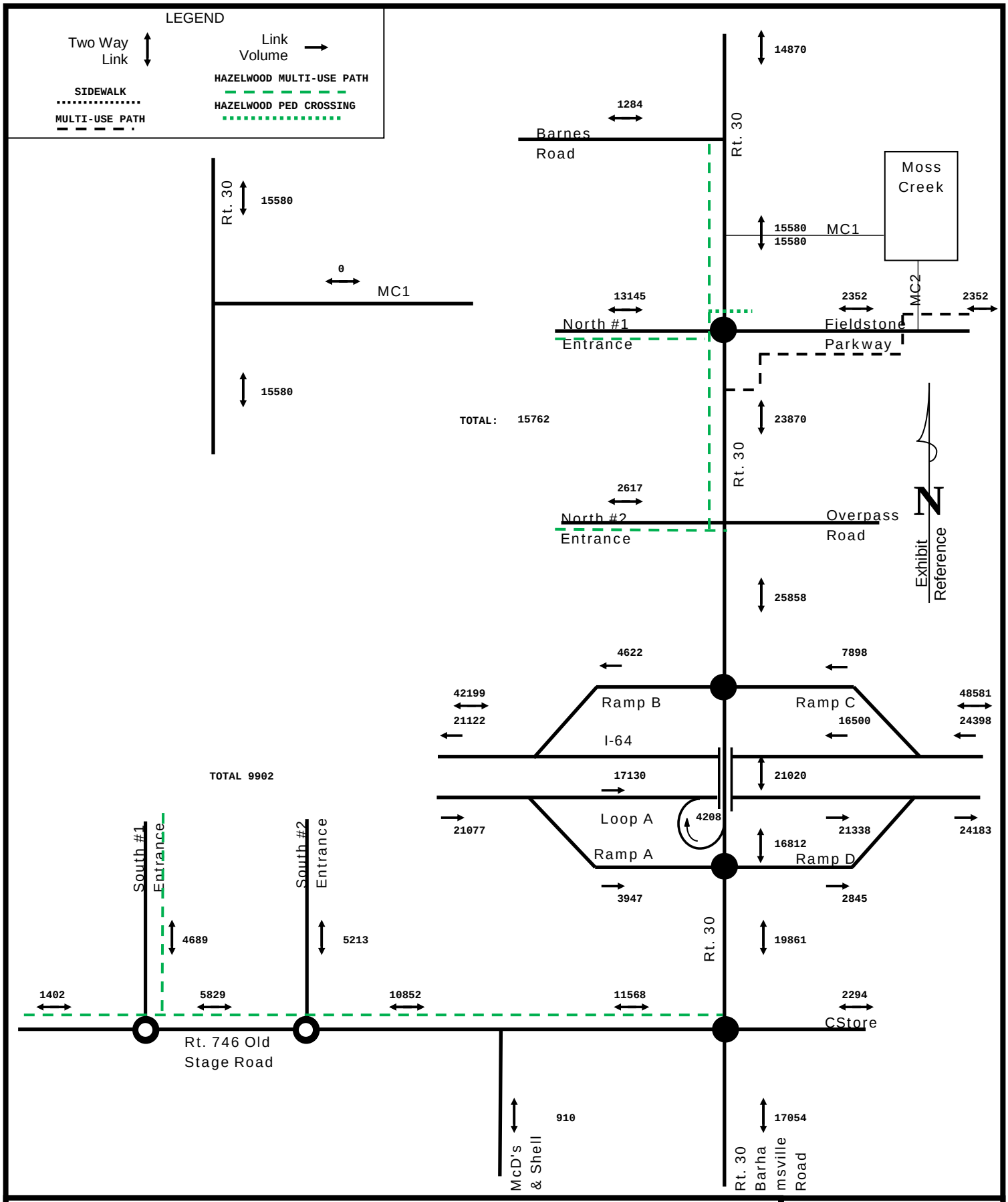
Exhibit 8a



2030 PM PEAK HOUR TOTAL TRAFFIC WITH HAZELWOOD FARMS

DRW Consultants, LLC
804-794-7312

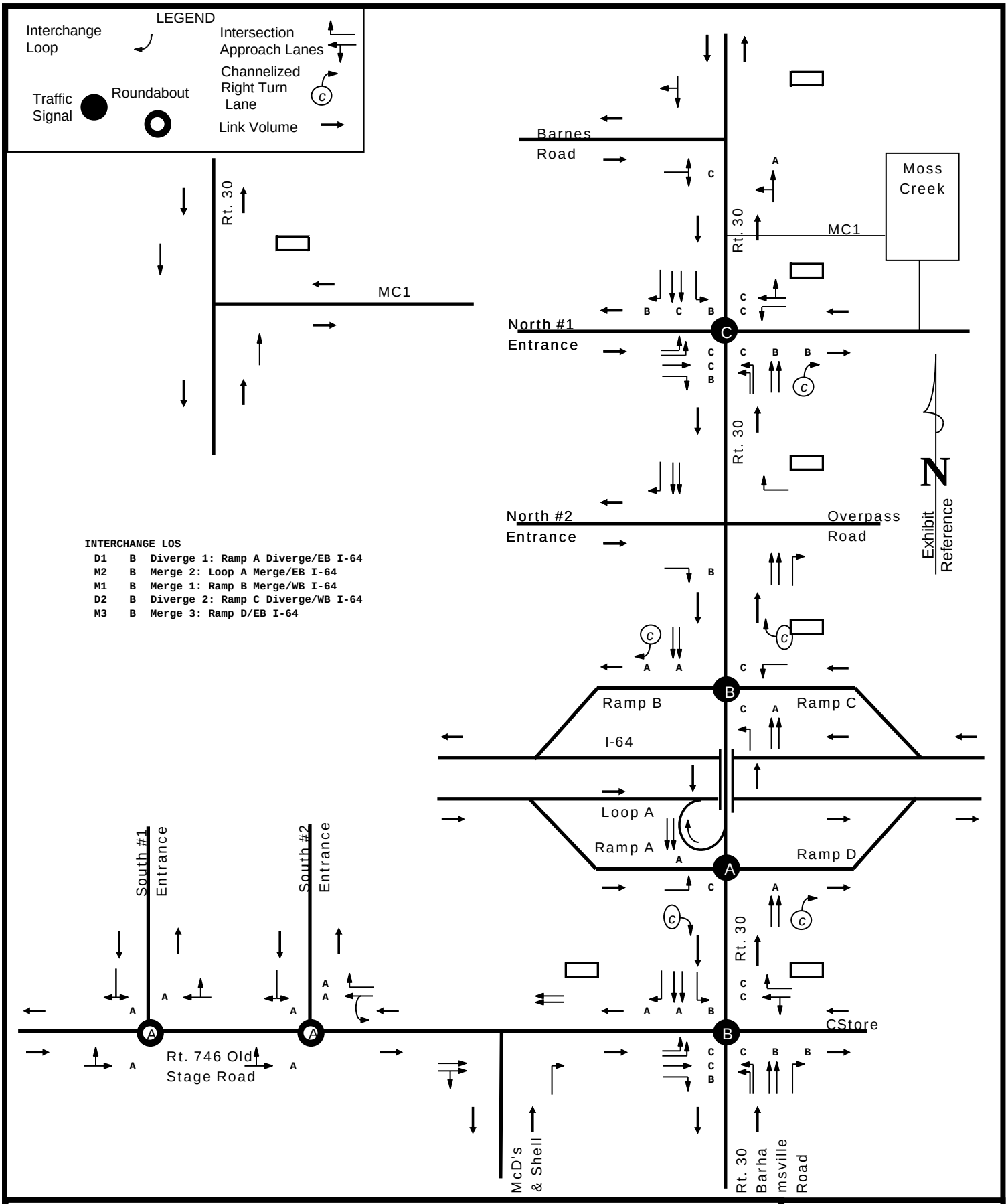
Exhibit 8b



2030 TOTAL DAILY TRAFFIC WITH HAZELWOOD FARMS
SIDEWALKS, MULTI-USE (VDOT SHARED USE PATH), TRANSIT

DRW Consultants, LLC
804-794-7312

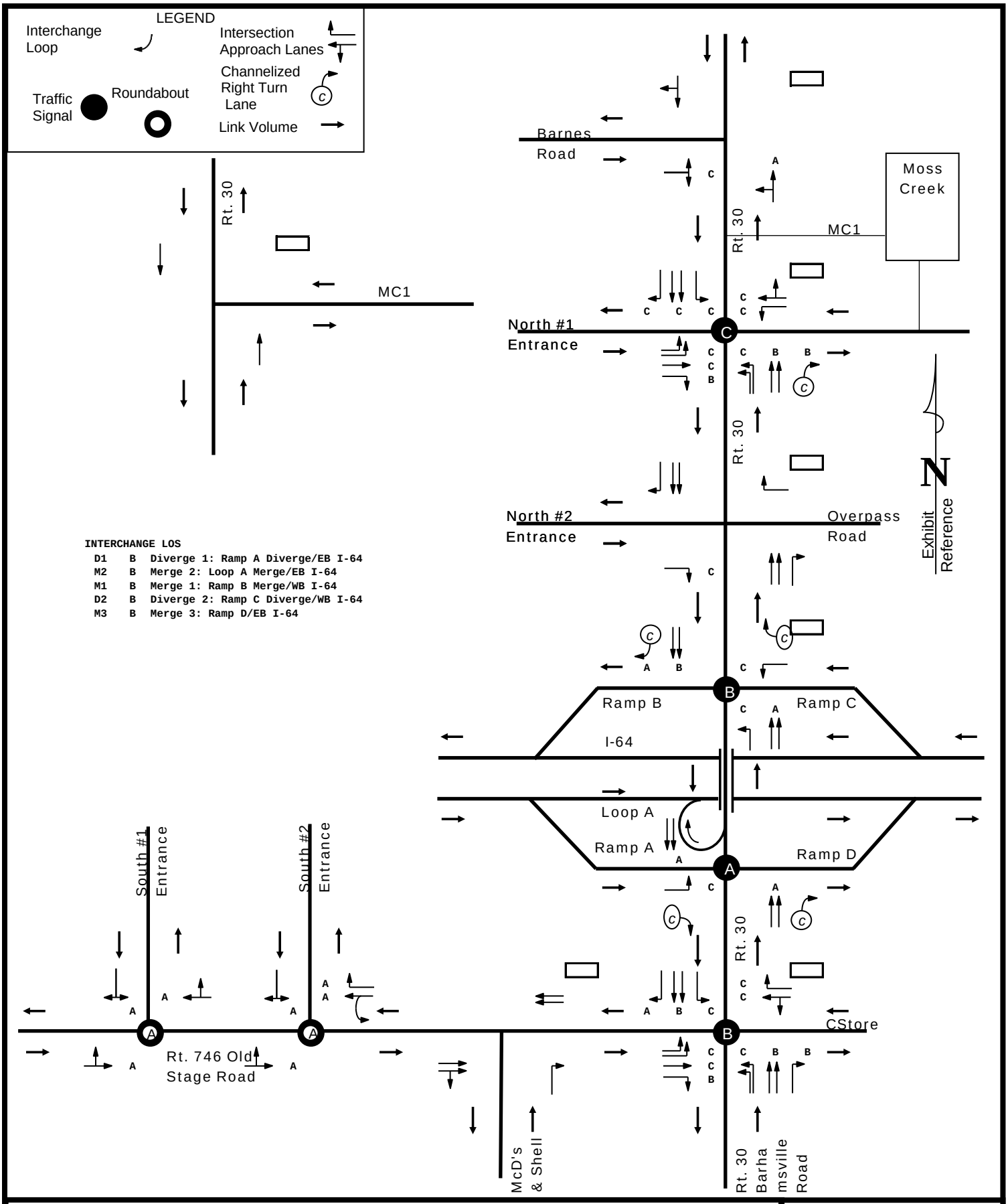
Exhibit 8c



2030 AM PEAK HOUR LEVEL OF SERVICE: 70 SECOND CYCLE
HAZELWOOD FARMS ONLY

DRW Consultants, LLC
804-794-7312

Exhibit 8d



2030 PM PEAK HOUR LEVEL OF SERVICE: 70 SECOND CYCLE
HAZELWOOD FARMS ONLY

DRW Consultants, LLC
804-794-7312

Exhibit 8e

VALUE	LAND USE	LAND USE CODE	SQ.FT., OTHER UNITS	WEEKDAY TRIP GENERATION AM PEAK HOUR Enter	Exit	Total	PM PEAK HOUR Enter	Exit	Total	DAILY
Table 1: Moss Creek Trip Generation - LandMark Traffic Study March 2006										
			TOTAL TRIPS	204	142	346	317	341	658	7167
			PASS BY TRIPS	28	28	56	52	52	104	1278
			PRIMARY TRIPS	176	114	290	265	289	554	5889

Table 2: Moss Creek Primary Trip Distribution k factor: 0.09181

	AM Peak Hour					PM Peak Hour			
	Entering Traffic		Exiting Traffic			Entering Traffic		Exiting Traffic	
Direction	% Dist.	Trips	% Dist.	Trips		% Dist.	Trips	% Dist.	Trips
North Rt. 30	20%	35	20%	23		20%	53	20%	58
East Fieldstone	10%	18	10%	11		10%	27	10%	29
East I-64	25%	44	25%	29		25%	66	25%	72
South Rt. 30	20%	35	20%	23		20%	53	20%	58
West I-64	25%	44	25%	28		25%	66	25%	72
	100%	176	100%	114		100%	265	100%	289

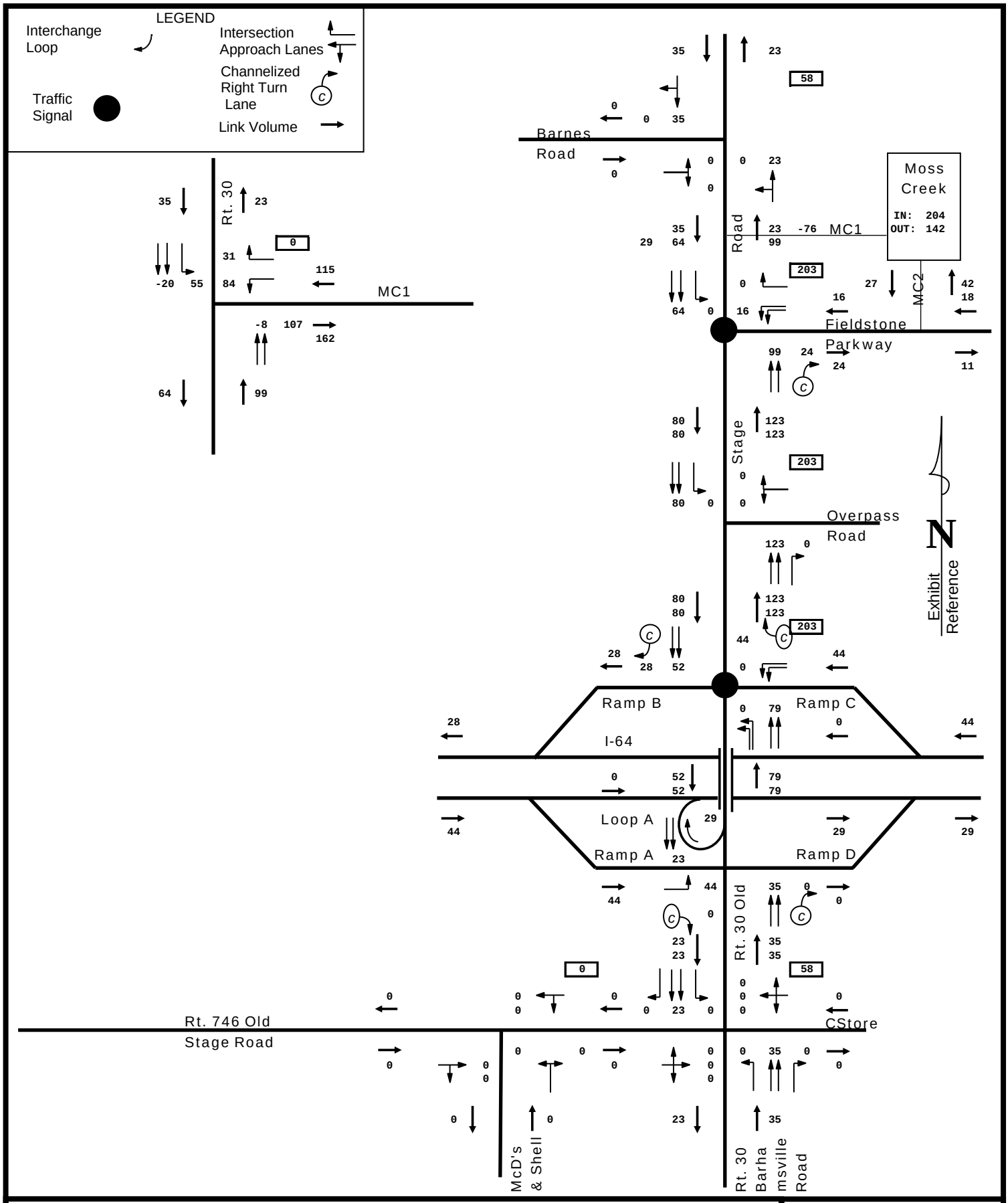
Table 3: Moss Creek Pass By Trip Distribution

	AM Peak Hour					PM Peak Hour			
	Entering Traffic		Exiting Traffic			Entering Traffic		Exiting Traffic	
Direction	% Dist.	Trips	% Dist.	Trips		% Dist.	Trips	% Dist.	Trips
North Rt. 30	798	20	326	8		404	16	895	36
South Rt. 30	326	8	798	20		895	36	404	16
	1124	28	1124	28		1299	52	1299	52

MOSS CREEK TRIP GENERATION AND DISTRIBUTION

DRW Consultants, LLC
804-794-7312

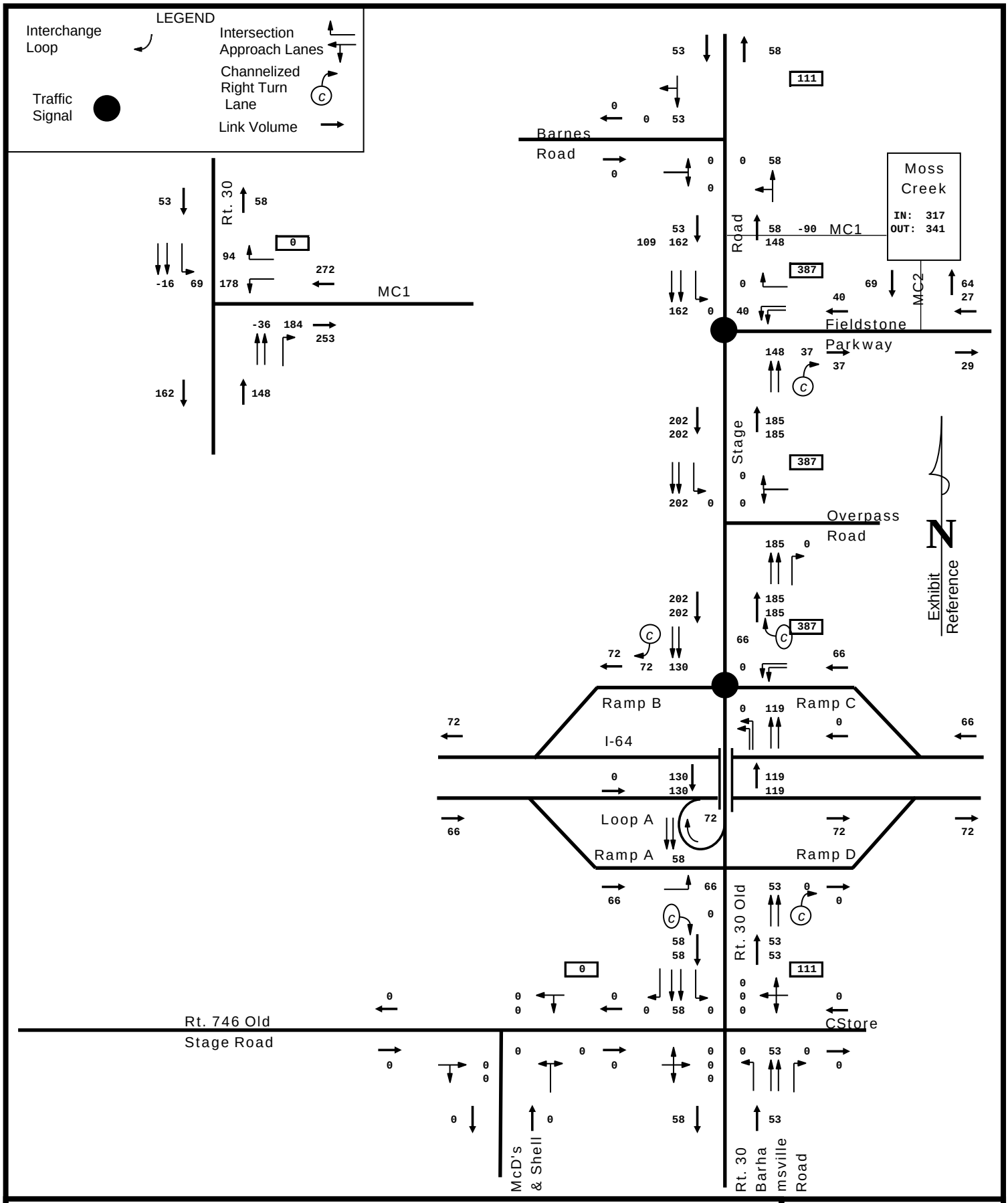
Exhibit 9



MOSS CREEK AM PEAK HOUR TRAFFIC

DRW Consultants, LLC
804-794-7312

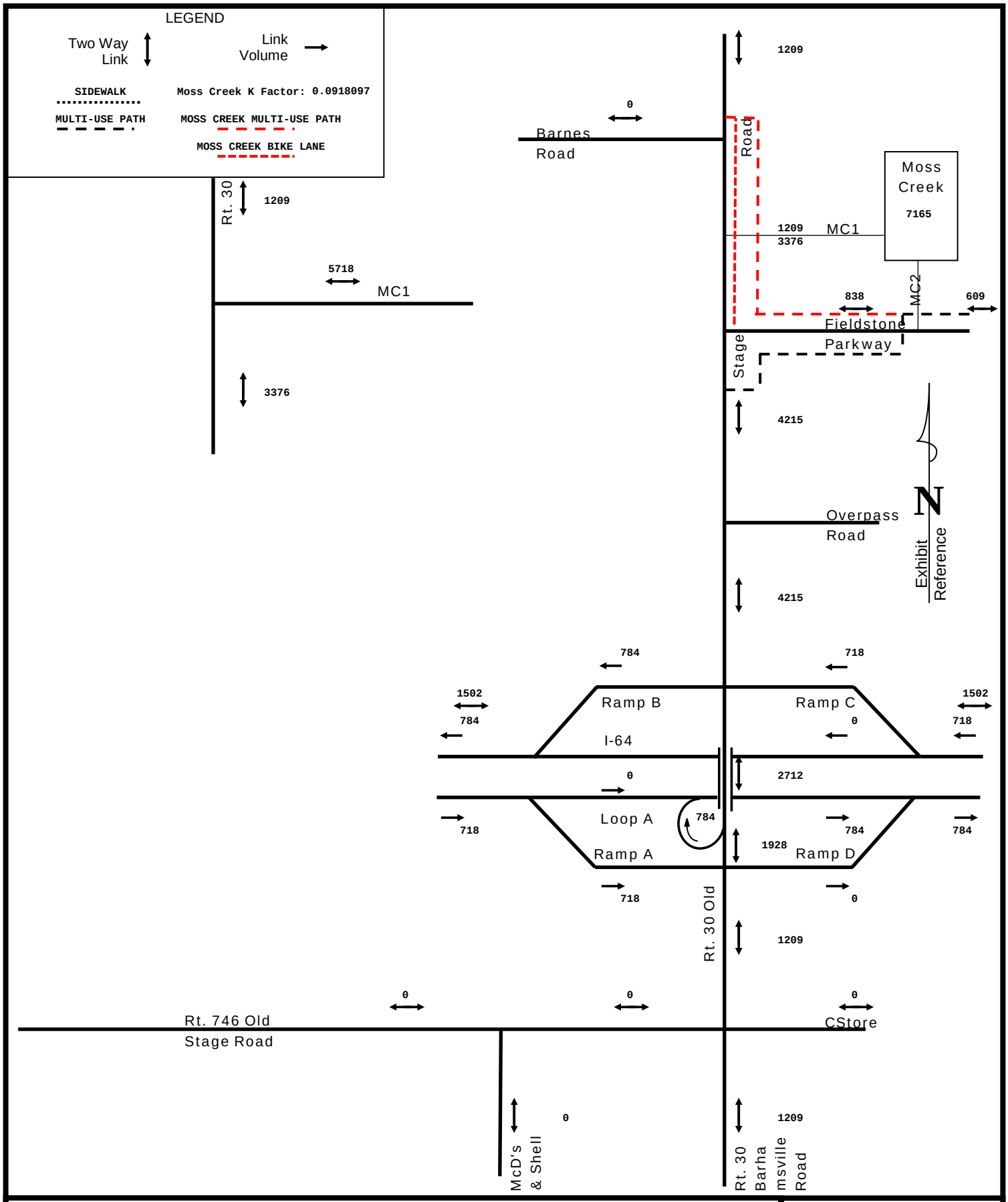
Exhibit 9a



MOSS CREEK PM PEAK HOUR TRAFFIC

DRW Consultants, LLC
804-794-7312

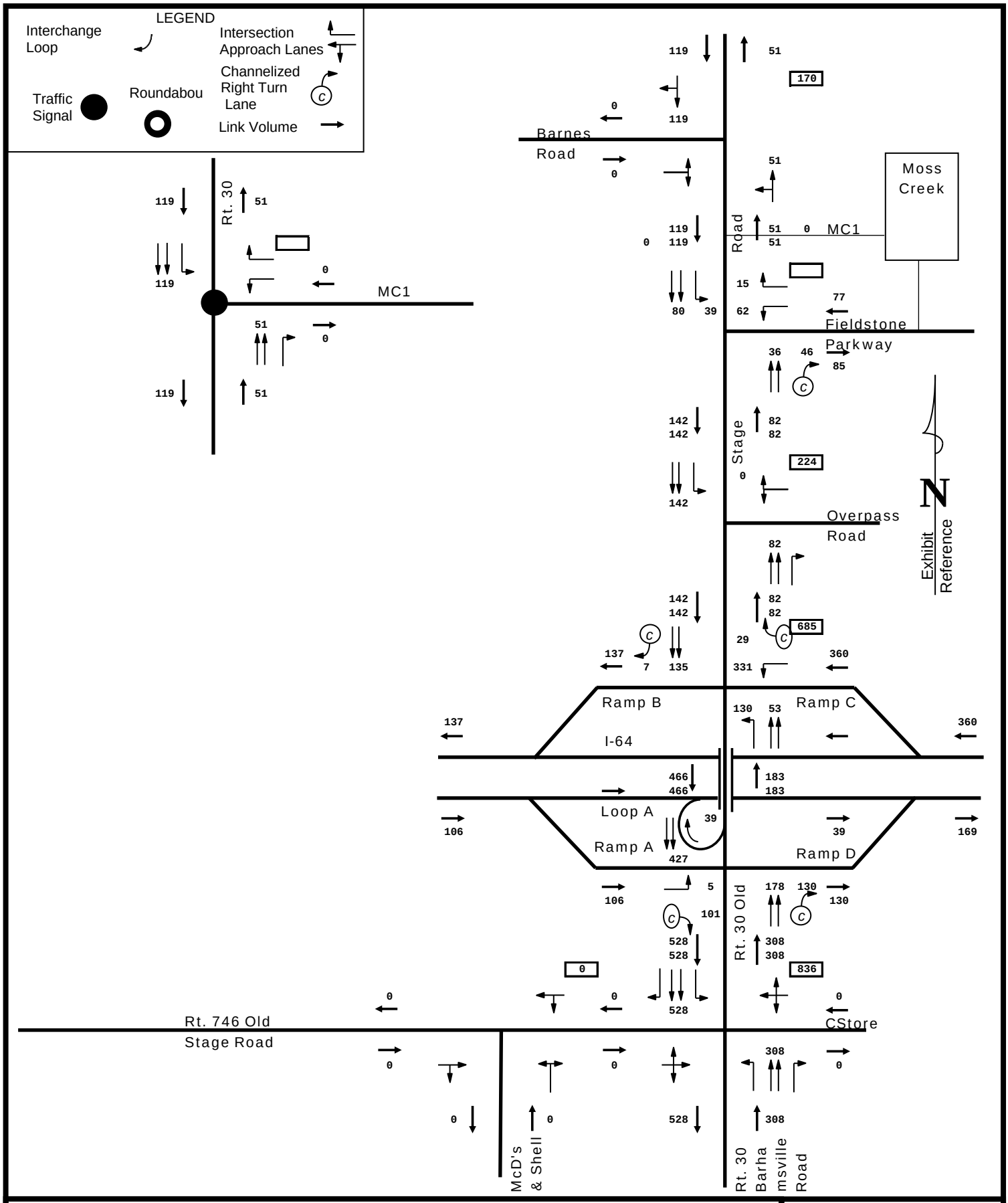
Exhibit 9b



MOSS CREEK DAILY TRAFFIC
SIDEWALKS, MULTI-USE (VDOT SHARED USE PATH), TRANSIT

DRW Consultants, LLC
804-794-7312

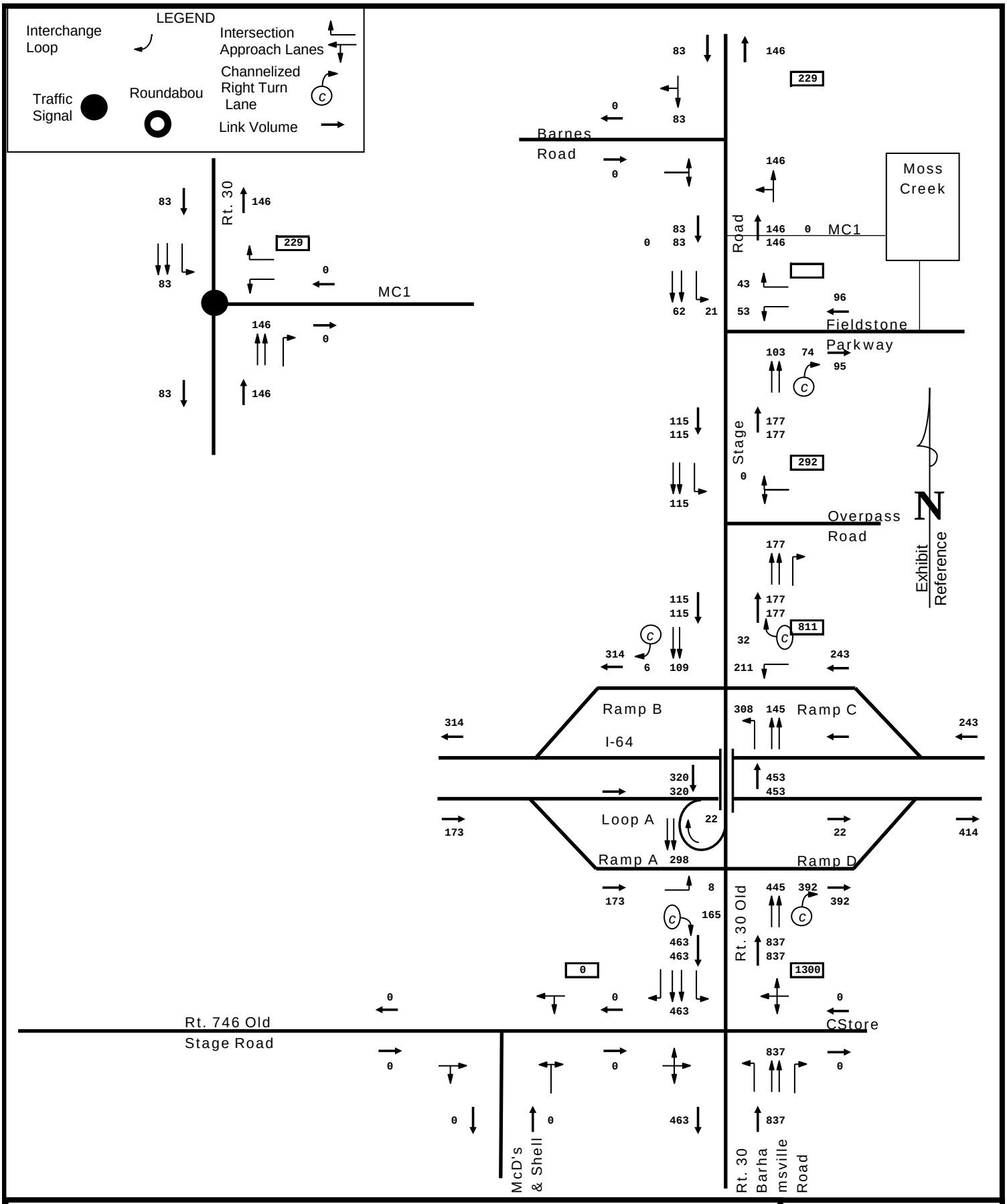
Exhibit 9c



STONEHOUSE PHASE 1 & 100% PHASE 2
AM PEAK HOUR

DRW Consultants, LLC
804-794-7312

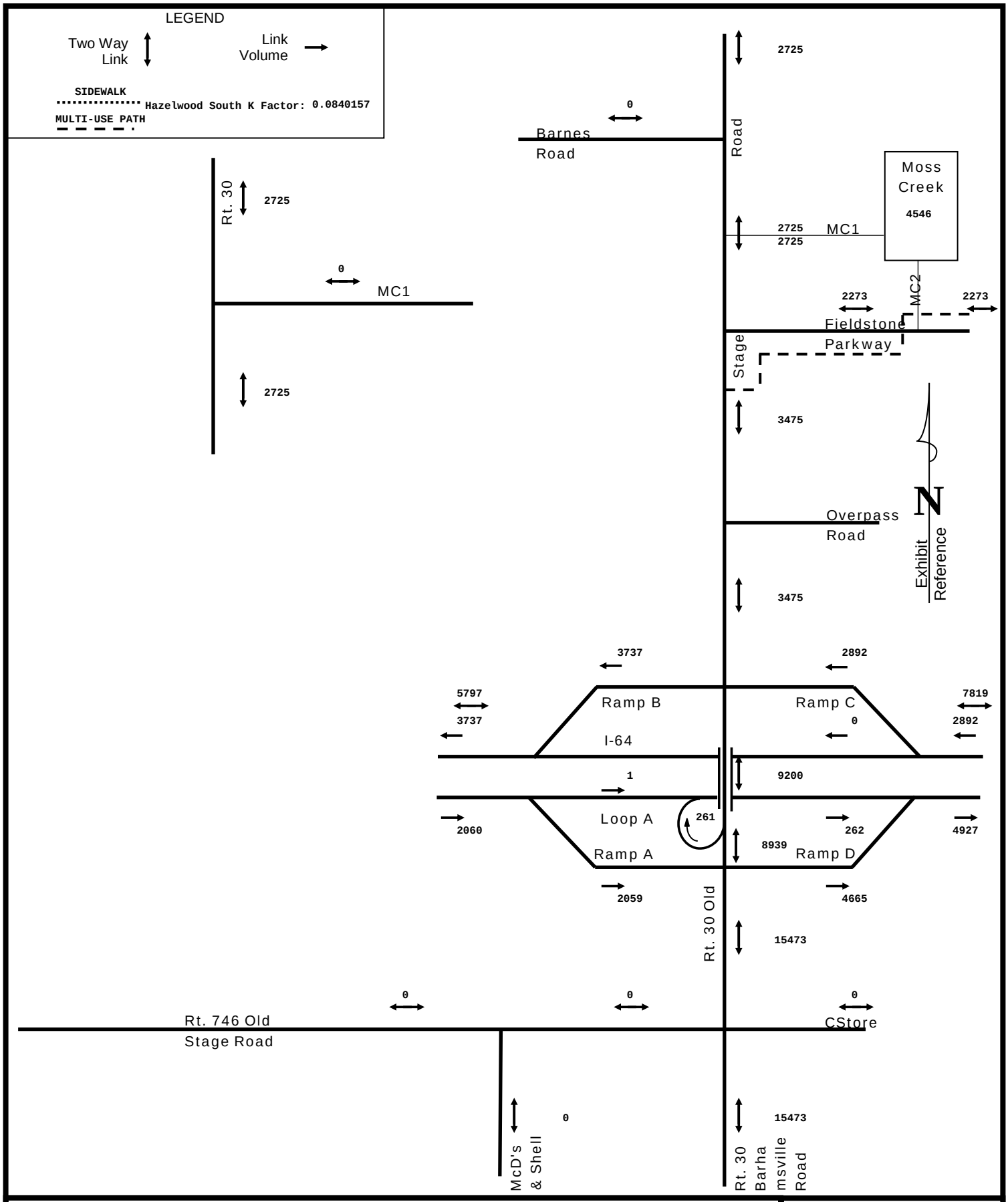
Exhibit 10a



STONEHOUSE PHASE 1 & 100% PHASE 2
PM PEAK HOUR

DRW Consultants, LLC
804-794-7312

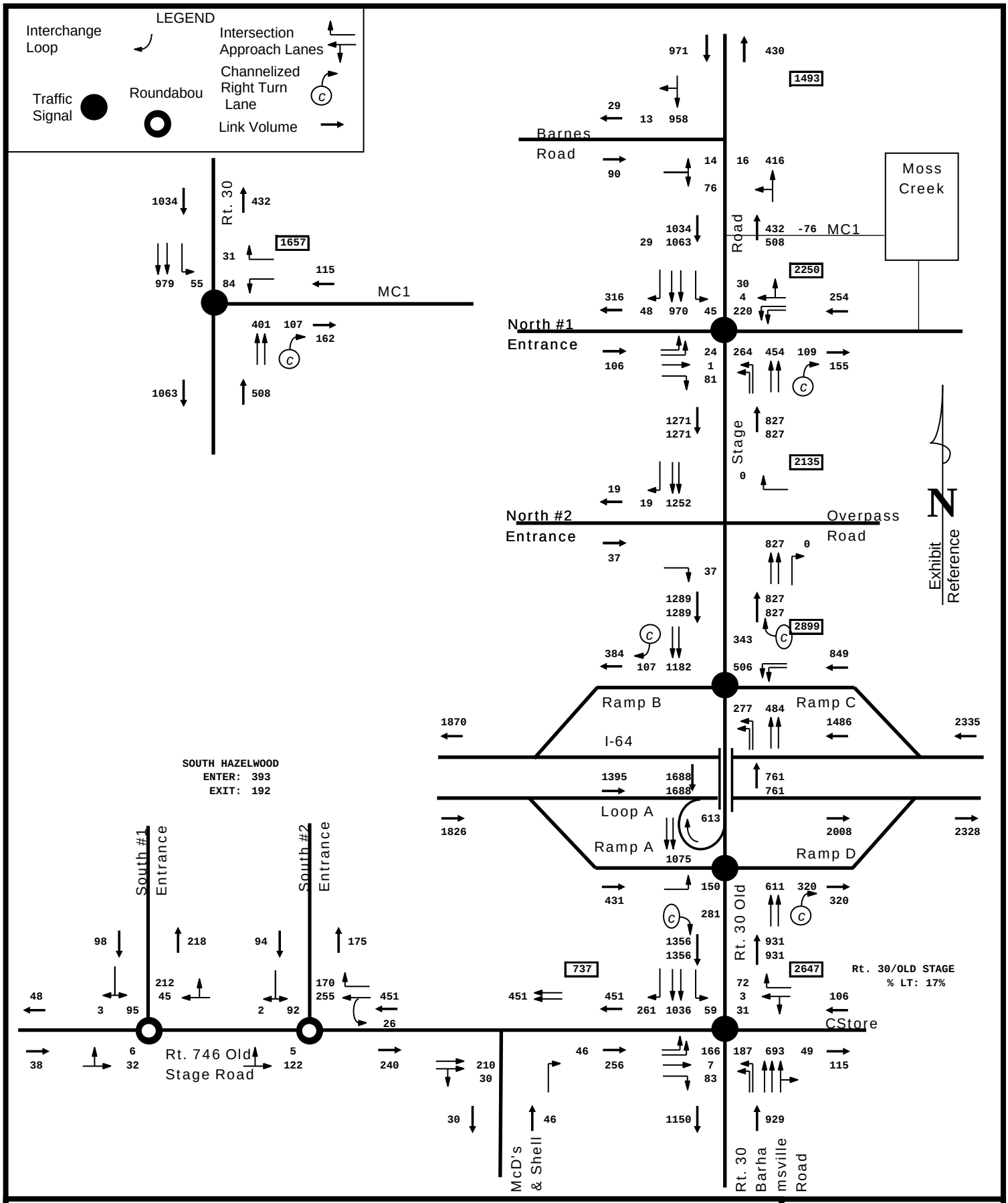
Exhibit 10b



STONEHOUSE PHASE 1 AND 100% PHASE 2 DAILY TRAFFIC
SIDEWALKS, MULTI-USE (VDOT SHARED USE PATH), TRANSIT

DRW Consultants, LLC
804-794-7312

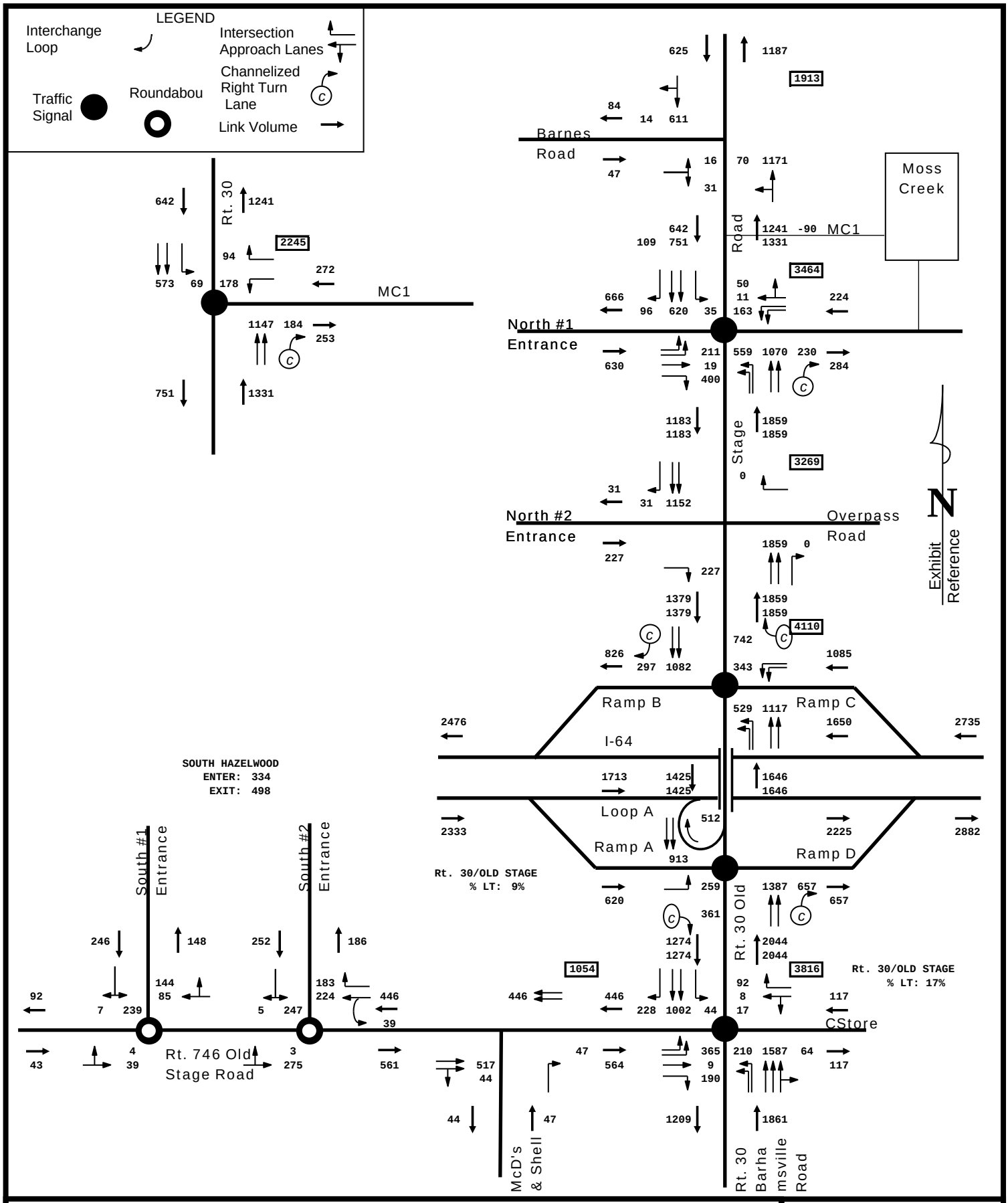
Exhibit 10c



2030 AM PEAK HOUR FORECAST
HAZELWOOD FARMS, STONEHOUSE & MOSS CREEK

DRW Consultants, LLC
804-794-7312

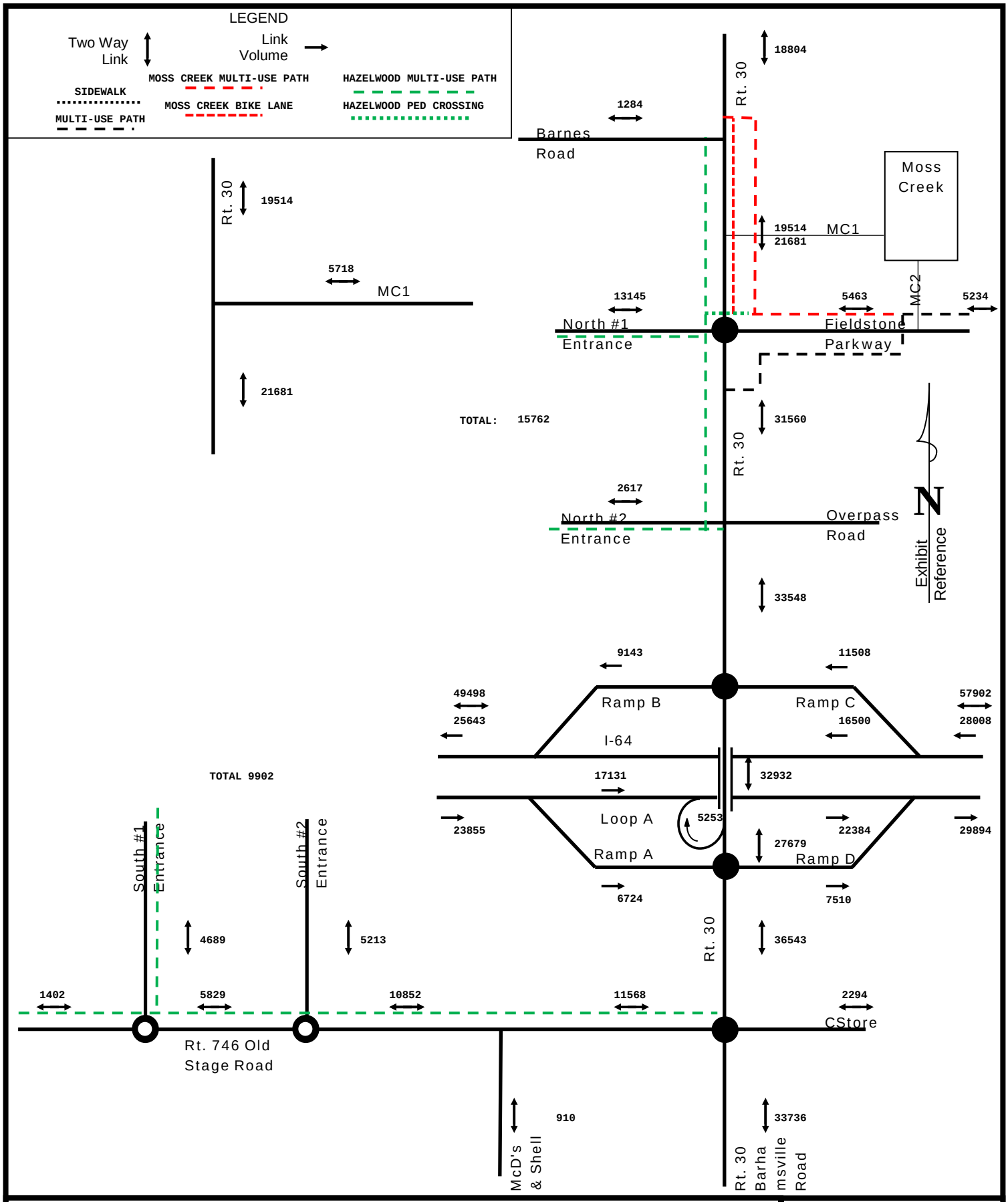
Exhibit 11a



2030 PM PEAK HOUR FORECAST
HAZELWOOD, STONE HOUSE AND MOSS CREEK

DRW Consultants, LLC
804-794-7312

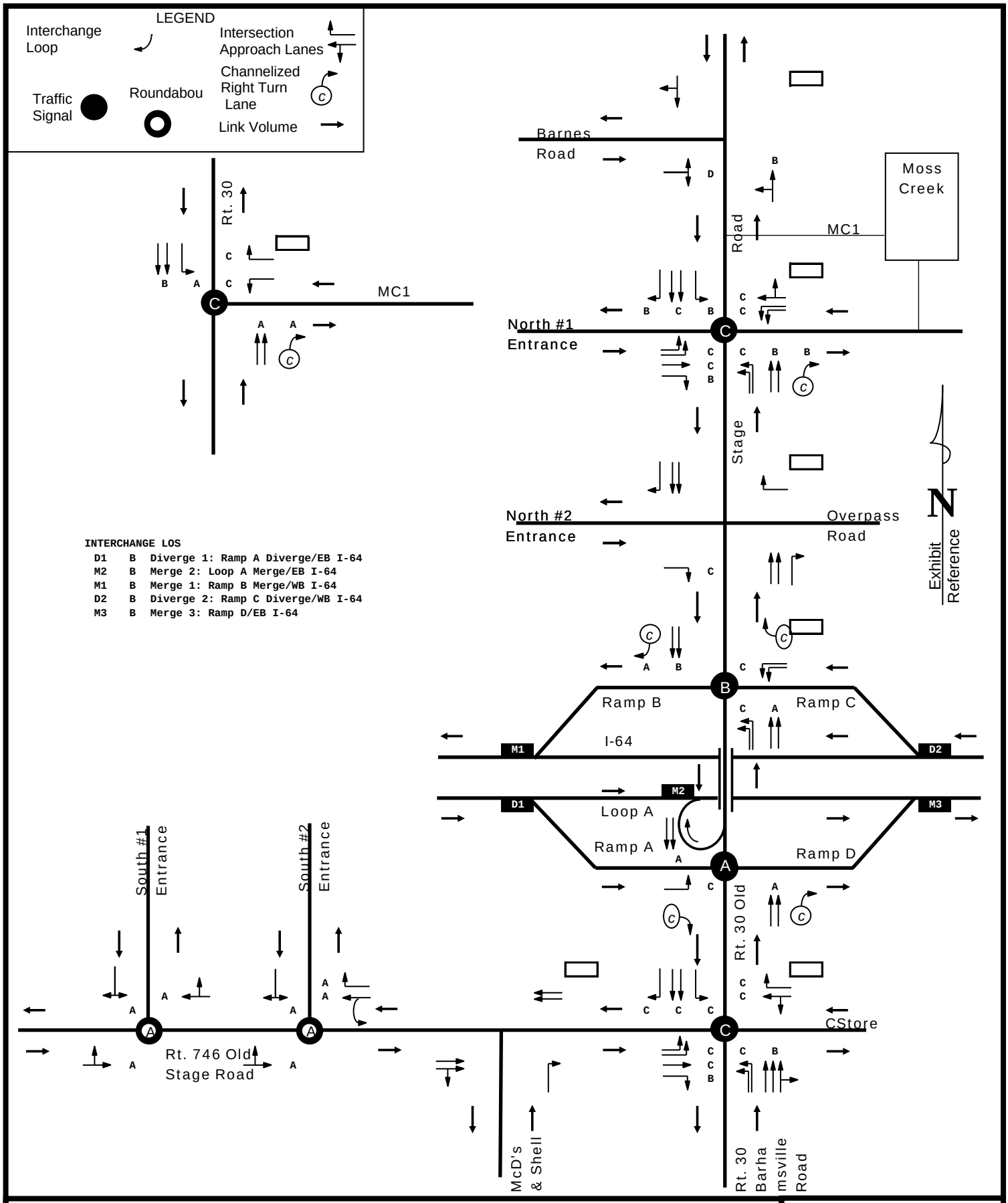
Exhibit 11b



2030 TOTAL DAILY TRAFFIC WITH HAZELWOOD FARMS AND STONEHOUSE
SIDEWALKS, MULTI-USE (VDOT SHARED USE PATH), TRANSIT

DRW Consultants, LLC
804-794-7312

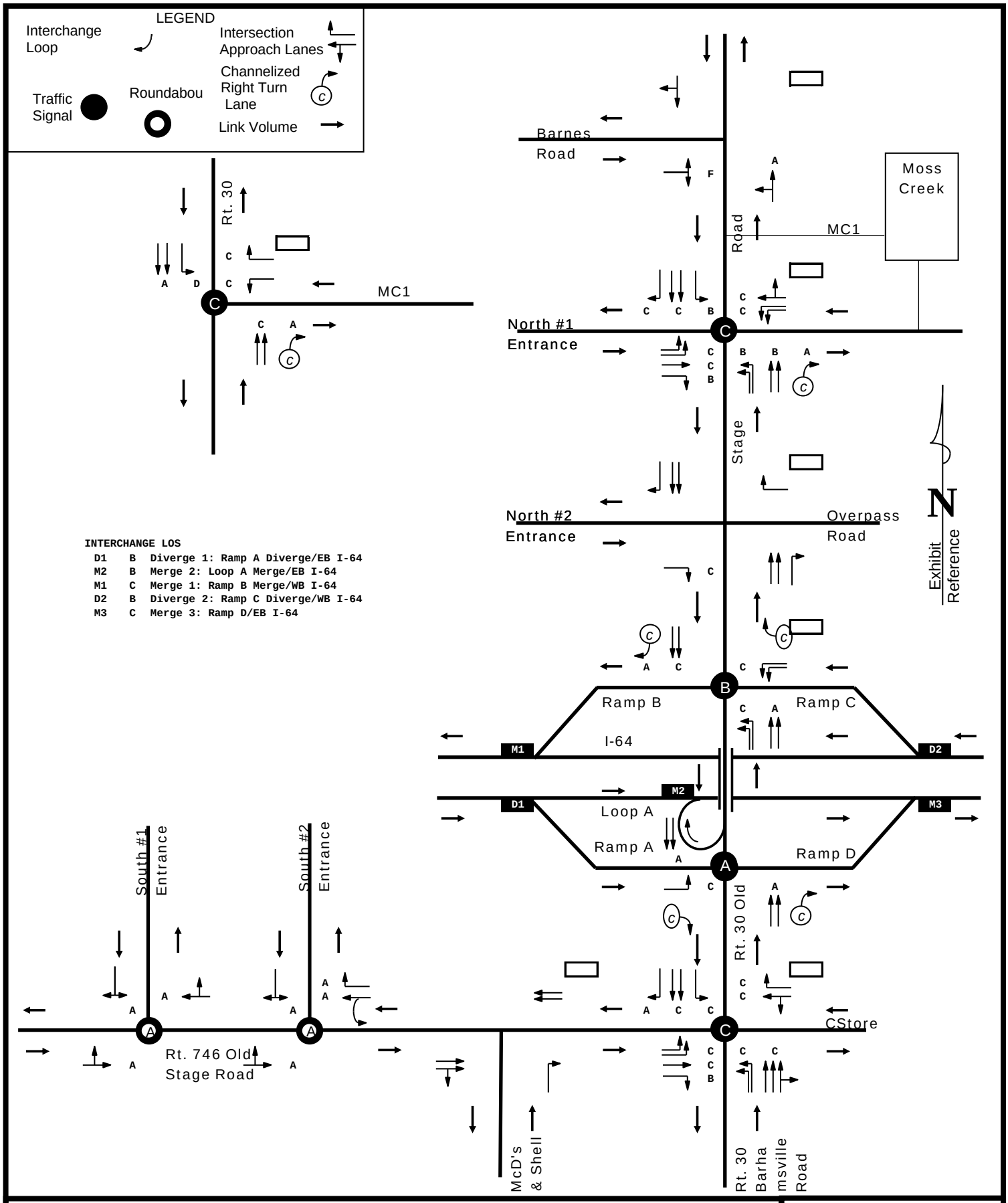
Exhibit 11c



2030 AM PEAK HOUR LEVEL OF SERVICE: 70 SECOND CYCLE
HAZELWOOD, STONEHOUSE AND MOSS CREEK

DRW Consultants, LLC
804-794-7312

Exhibit 11d



2030 PM PEAK HOUR LEVEL OF SERVICE: 70 SECOND CYCLE
HAZELWOOD, STONEHOUSE AND MOSS CREEK

DRW Consultants, LLC
804-794-7312

Exhibit 11e

DRW Consultants, LLC
Traffic Impact Studies
Development Access
Condemnation Damages

TO: Tim Trant, Esq.
FROM: Dexter R. Williams, P. E.
SUBJECT: Barnes Road Access Alternatives At Rt. 30
Response To Kimley-Horn & Assc. Inc. Letter Dated June 7, 2019, Comment 12
DATE: January 14, 2020

The existing Rt. 30/Barnes Road intersection is on a two-lane section of Rt. 30 with stop sign control for the single lane approach on Barnes Road. As traffic increases on Rt. 30, the level of service experience for the stop sign control on Barnes Road will decline.

The LOS F for Barnes Road at Rt. 30 shown in the January 2019 traffic study occurs in the PM peak hour with all development (Stonehouse, Moss Creek, Hazelwood Farms North and South) in place. Given the pace of development in Stonehouse to date, this extent of development will likely require decades for full development (e.g., Stonehouse was originally zoned in 1991 [29 years ago], has been rezoned three times, and to date there still is not enough traffic at the Fieldstone Drive and LaGrange Parkway intersections with Rt. 30 to warrant the envisioned traffic signals). At some point with all this development in place and if Barnes Road approach traffic at Rt. 30 is unchanged, then the result will be LOS F (73.7 seconds delay) primarily due to the 16 vehicles per hour (VPH), ~one vehicle every four minutes, continuing to make a left turn from Barnes Road to northbound Rt. 30.

With increasing traffic and improvements to the road network, the 16 VPH from Barnes Road to northbound Rt. 30 have an alternative route. The 16 VPH can avoid the forecast 1.2-minute delay at the Barnes Road stop sign by:

1. Turning right onto southbound Rt. 30.
2. Traveling approximately ¼ mile to U-turn at Fieldstone Parkway.
3. Continuing northbound on Rt. 30

With full development, there will be a signal at Rt. 30/Fieldstone Parkway to provide a safe and convenient, southbound to northbound U-turn on Rt. 30. With the 16 VPH utilizing this U-turn, the Barnes Road approach to Rt. 30 has a LOS B. Overall level of service at Rt. 30/Fieldstone Parkway/Hazelwood North Entrance #1 is unchanged by the Barnes Road diversion U-turn.

The Moss Creek development and its current access plan may change. The Moss Creek plan was zoned in 2006, with no development is the fourteen years since. The current Moss Creek plan signalized entrance on Rt. 30 is 920 feet from Fieldstone Parkway. This is less than the 1320 feet

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required by VDOT Minimum Spacing Standards for signalized intersections. Any new Moss Creek plan with a Rt. 30 signal will invariably prompt VDOT to require minimum spacing, which in turn puts any revised plan signal aligned at Barnes Road, which automatically relieves the inherent unsignalized intersection LOS problem.

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TO: Tim Trant, Esq.
FROM: Dexter R. Williams, P. E.
SUBJECT: Hazelwood Farms Rt. 30 Shared Use Path
Response To Kimley-Horn & Assc. Inc. Letter Dated June 7, 2019, Comment 13
DATE: January 29, 2020

COMMENT 13 AND PRESUMED IMPROVEMENTS TO RT. 30 BRIDGE OVER I-64

Regarding the Rt. 30 bridge over I-64, Comment 13 included the following: "accommodation of dedicated bike lanes and a shared-use path across the overpass" in accordance with Exhibit 1g-3 in the 2019 Ch. 527 study for Hazelwood Farms. Exhibit 1g-3 is a section of the Regional Bikeway Plan for the I-64/Rt. 30 area. Exhibit 1g-4 in the 2019 Ch. 527 study is a section of the JCC Draft 2011 Pedestrian Accommodation Master Plan.

Following are the designations on the Regional Bikeway Plan and the JCC Draft 2011 Pedestrian Accommodation Master Plan plans for Rt. 30 from Barnes Road to Old Stage Road:

- Regional Bikeway Plan
  - Proposed Multi-Purpose Path
  - Proposed Bike Lane
- JCC Draft 2011 Pedestrian Accommodation Master Plan
  - Multi-Use on the west (Hazelwood) side of Rt. 30.

It is one thing for government to adopt a ped/bike facility showing facilities on one side of a road. It is something else entirely for Comment 13 to go beyond government master planning and imply some unconceivable presumptions of cost responsibility for property owners:

1. That property owners located the one side of road designated by a government plan for a shared use path should have to pay the cost for all of the shared use path.
2. That Hazelwood Farms should have to pay for both the multi-use path designated on its side of Rt. 30 in the Draft 2011 Plan and also pay for a bike lane on the Regional Bikeway Plan which doesn't have a designated side.
3. That any property owners, and one property owner in particular, should have to pay for Interstate bridge deck modifications for all users to correct a perceived lack of connectivity that was created by State condemnation of Hazelwood Farms for construction of I-64.

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For the record, KHA provided a preliminary plan for the VDOT Longhill Road Shared Use Path project. The "Shared Use Path" plan on the Longhill Road bridge over Rt. 199 has 7 feet 10 inches clearance from bridge parapet wall to wall divider from vehicle traffic. The VDOT specification for a shared use path lateral wall clearance on a bridge is 14 feet. On the preliminary drawing, the "Shared Use Path" is designated as a sidewalk.

The multi-use path and bike lane referenced above for the Rt. 30 bridge over I-64 would require ~20 feet clearance. The construction estimate to the Longhill project is $3.6 million, and I estimate the bridge deck at $2.5 million. Even if the inferior 7 feet 10-inch clearance is applied to the Rt. 30 bridge, the resulting cost is approximately $5 million.

PROPOSED SHARE USED PATH SYSTEM – HAZELWOOD FARMS

The Hazelwood Farms plans have been revised to include shared use paths along the west side Rt. 30 as follows:

- Village Center At Hazelwood Farms (North)
    - Barnes Road (Sta. 299+30) south to end of limited access fence (Sta 321+95): 2,300 feet
    - End of limited access fence (Sta 321+95) to south of Ramp B (Sta 337+25) located inside of limited access fence: 1,500 feet
    - Shared use path at Sta 337+25 connects to 10-foot shoulder along Rt. 30 north of I-64 bridge
    - Total: 3,800 feet
- Enterprise Center At Hazelwood Farms (South)
    - Old Stage Road (Sta 358+70) to north of Ramp A (Sta 348+10) located inside limited access fence: 1,000 feet
    - Shared use path at Sta 348+10 connects to 10-foot shoulder along Rt. 30 south of I-64 bridge

The total length of shared use path by Hazelwood Farms along the west side of Rt. 30 is 4,800 feet. Of the total, 2,500 feet is located within the limited access fence on Rt. 30. The Rt. 30 shared use paths on both sides of I-64 were deliberately designed to tie into the existing 10 foot paved shoulder lane that extends from the Village Center shared use path tie in (Sta 337+25) across the bridge to the Enterprise Center shared use path tie in (348+10). The Hazelwood Farms shared use path are located mostly in areas where there is little or no paved shoulder lane. With the Hazelwood Farms shared use paths, there is 10 feet of continuous pavement width outside of vehicular travel lanes to accommodate non-vehicular traffic from Barnes Road to Old Stage Road.

It should also be noted that shared use paths are provided along the Old Stage Road frontage for

Enterprise Center from Rt. 30 to Leisure Road (~1600 feet) and on Leisure Road from Old Stage Road to the Enterprise Center property limits near Upper County Park (~1400 feet). This is a total of approximately 7,800 feet of shared use path to be built along existing roads.

The shared use path system also includes a connection across Rt. 30 at Fieldstone Parkway to Moss Creek and by connection to Stonehouse. Given the total lack of pedestrian/bike accommodations along the Stonehouse frontage on Rt. 30 and south to the I-64 interchange, the shared use path system proposed by Hazelwood Farms provides a means to compensate for this oversight on the east side of Rt. 30.

HAZELWOOD FARMS MEASURES OF SEPARATION

KHA Comment 13 references a lack of "account for no connection between Hazelwood North and South". The two projects (Village Center and Enterprise Center) are just that: two separate projects with I-64 creating a vast chasm between the two separate projects. Following are dimensional measures of separation between the two developments:

- The distance from the end of limited access line at Village Center (North) to the end of limited access lane at Enterprise Center (South) is 3,675 feet, 0.7 miles.
- The walking/biking distance from the center of Village Center to the main access to Enterprise Center (South Entrance #2) on Old State Road is 6400 feet, 1.2 miles.
- Enterprise Center is approximately 1 mile deep, so the center to center distance between Village Center and Enterprise Center is 1.7 miles.

In summary, the two separate projects are well over 0.5 miles apart by the closest measure, and well over 1.5 miles apart measured by center of development.

EFFECTIVE CONNECTIVITY BETWEEN VILLAGE CENTER AND ENTERPRISE CENTER AND TRANSIT

These measures of separation between Village Center and Enterprise Center are far in excess of common planning standards for walking limits:

- "The transit industry widely applies the 400-meter (0.25-mile) and 800-meter (0.5-mile) rules of thumb when estimating service areas around bus and rail stations." — El-Geneidy et al. (2014)
- A 10-minute walk (0.5 mile) is also considered a reasonable distance for accessing public parks. This is the distance that The Trust for Public Land applies in their rating system developed to measure how well the 100 largest U.S. cities are meeting the need for parks.

Even the shortest measure of separation (0.7 mile) is in excess of the longer range of walking limits (0.5 mile). For non-automobile connectivity between these two separate developments and in fact the rest of James City County and the Williamsburg area, transit is the effective strategy.

The existing WATA 9 Purple 2 line currently terminates at Stonehouse Industrial Park. An extension of this line to Hazelwood Farms provides connectivity between the two separate developments and the balance of Williamsburg. Transit can provide effective connectivity for all income and health ranges. To this end, Hazelwood Farms proffers include a commitment to provide at least two bus stops within the development or on public road frontages and may be determined as feasible by WATA.

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TO: Tim Trant, Esq.
FROM: Dexter R. Williams, P. E.
SUBJECT: Analysis Of 2030 traffic with Hazelwood Farms – 90/100 Second cycles
DATE: January 9, 2020

This memo and enclosed exhibits are provided as a supplement to the January 2019 Ch. 527 Traffic Impact Statement For Village Center And Enterprise Center At Hazelwood Farms (2019 study). This memo presents another scenario for the 2030 forecast year: background growth with Hazelwood Farms only using 90 cycle lengths for AM peak hour and 100 second cycle lengths for PM peak hour.

Total 2030 AM peak hour traffic with Hazelwood Farms is shown on enclosed Exhibit 1a. Total 2030 PM peak hour traffic with Hazelwood Farms is shown on enclosed Exhibit 1b. Also shown on Exhibits 1a and 1b are intersection lane configurations used in this analysis. Traffic analysis reports are enclosed as follows:

- HCM Signalized Intersection Capacity Analysis: ExJ7 for AM, Ex J8 for PM
- HCM 6th Two Way Stop: ExK7 for AM, Ex K8 for PM
- Synchro Queues: ExL7 for AM, ExL8 for PM
- SimTraffic Queuing and Blocking Report: ExM7 for AM, ExM8 for PM

Following are analysis results for each intersection:

RT. 30/FIELDSTONE PARKWAY- 2030 WITH HAZELWOOD FARMS

The following table shows signalized intersection LOS results at Rt. 30/Fieldstone Parkway:

TABLE 6-1 Rt. 30/FIELDSTONE PARKWAY
2030 HAZELWOOD ONLY 90/100 SECOND CYCLE

SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	C	23.4	C	21.9	Length	AM	PM	AM	PM
EBL2	C	28.5	C	32.4	150	31	172	46	193
EBT	D	39.6	D	35.6		5	30	6	94
EBR	C	22.8	C	20.8	200	0	86	90	236
WBL	D	36.5	D	46.8	250	122	65	156	100
WBT/R	D	43.0	D	50.1		24	31	38	42
NBL2	C	34.3	C	30.4	300	109	210	145	286
NBT2	A	9.9	B	10.1		107	148	106	427
NBR	A	8.6	A	1.4	350	1	2		
SBL	B	16.0	C	25.9	150	11	25	20	40
SBT2	C	23.5	C	28.6		276	183	182	169
SBR	B	16.1	C	24.4	200	0	0	41	64

SimTraffic queue shown is maximum report value for multi-lane groups

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Overall intersection LOS C and all lane groups are LOS C or better for Rt. 30 major streets and LOS D or better for minor street movements. Note: a single left turn lane is used on eastbound North #1 Entrance vs. two lane left turns used in previous analysis. All auxiliary lane queues are within storage length.

RT. 30/I-64 WESTBOUND RAMPS - 2030 WITH HAZELWOOD FARMS

The following table shows signalized intersection LOS results at Rt. 30/I-64 westbound ramps:

TABLE 6-2 Rt. 30/I-64 WESTBOUND RAMPS 2030 HAZELWOOD ONLY 90/100 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	B	11.0	A	9.7	Length	AM	PM	AM	PM
WBL	D	42.3	D	46.1		166	144	112	111
NBL	C	32.3	A	9.9	200	141	93	169	165
NBT2	B	11.1	A	7.5		37	227	119	1536
SBT2	A	6.2	A	8.8		101	168	221	210
SBR	A	0.1	A	0.2	300	0	0		

SimTraffic queue shown is maximum report value for multi-lane groups

Overall intersection LOS A and B and all lane groups are LOS C or better for Rt. 30 major streets and LOS D or better for minor street movements. All auxiliary lane queues are within storage length.

RT. 30/I-64 EASTBOUND RAMP A - 2030 WITH HAZELWOOD FARMS

The following table shows signalized intersection LOS results at Rt. 30/I-64 eastbound ramp A:

TABLE 6-3 Rt. 30/I-64 EASTBOUND RAMP 2030 HAZELWOOD ONLY 90/100 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	A	4.3	A	8.9	Length	AM	PM	AM	PM
EBL	D	42.9	D	45.5		106	183	101	168
NBT2	A	0.4	A	1.5		5	14	48	84
SBT2	A	0.5	A	8.4		0	157	68	95

SimTraffic queue shown is maximum report value for multi-lane groups

Overall intersection LOS A and B and all lane groups are LOS C or better for Rt. 30 major streets and LOS D or better for minor street movements.

RT. 30/OLD STAGE ROAD - 2030 WITH HAZELWOOD FARMS

The following table shows signalized intersection LOS results at Rt. 30/Old Stage Road:

TABLE 6-4 Rt. 30/OLD STAGE ROAD 2030 HAZELWOOD ONLY 90/100 SECOND CYCLE									
SIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	Synchro		SimTraffic Q&B	
Overall	B	19.0	C	23.0	Length	AM	PM	AM	PM
EBL2	D	38.0	D	40.1	200	80	162	119	192
EBT	D	35.2	C	33.2		17	19	26	29
EBR	C	22.8	C	23.4	200	0	29	99	167
WBL/T	D	40.9	D	45.9		49	43	63	51
WBR	D	39.2	D	44.4		0	22	61	69
NBL2	D	38.3	D	39.8	200	87	105	123	109
NBT2	B	17.0	B	17.5		129	257	101	166
NBR	B	15.2	B	13.5		0	3	19	14
SBL	C	20.4	D	46.7	200	51	68	83	61
SBT2	A	7.5	B	13.8		87	127	95	106
SBR	A	7.5	A	2.7		3	6	96	91

SimTraffic queue shown is maximum report value for multi-lane groups

Overall intersection LOS is LOS B and C and all lane groups are LOS D or better. All auxiliary lane queues are within storage length.

RT. 30/BARNES ROAD – 2030 WITH HAZELWOOD FARMS

The following table shows unsignalized intersection LOS results at Rt. 30/Barnes Road:

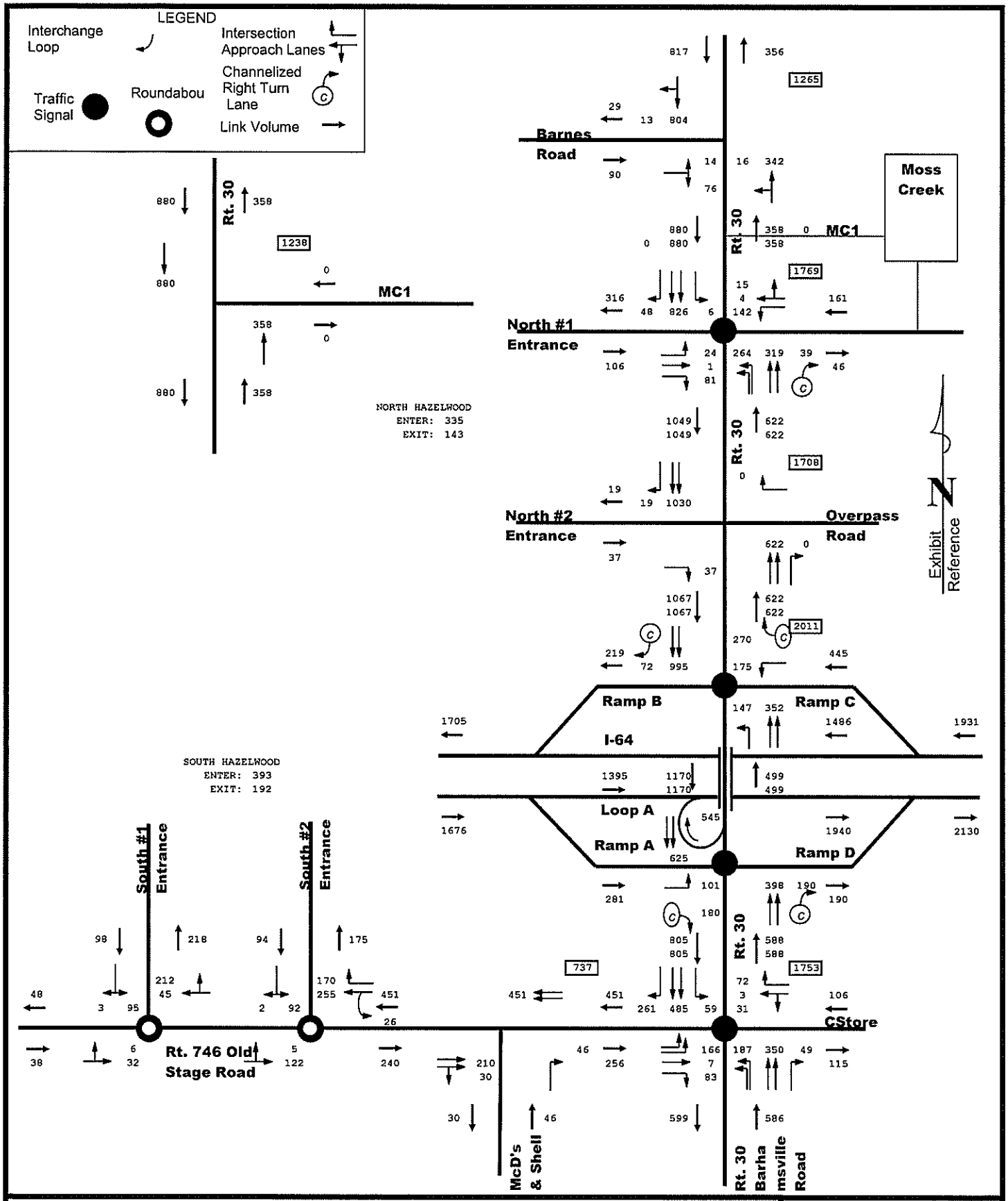
TABLE 6-5 RT. 30/BARNES ROAD 2030 HAZELWOOD ONLY UNSIGNALIZED									
UNSIGNALIZED LOS And Seconds Delay					95th Percentile Queues By Lane Group				
	AM		PM		Storage	HCM 6th		SimTraffic Q&B	
					Length	AM	PM	AM	PM
EBL/R	C	23.1	D	32.7		35	30	89	82
NBL/T	A	9.9	A	8.8		3	10		169

All lanes have LOS D or better.

SUMMARY COMMENTS - 2030 WITH HAZELWOOD FARMS

All signalized intersections have LOS C or better overall and LOS D or better for each turning movement. For unsignalized Barnes Road, eastbound AM was LOS C and PM is LOS D. All auxiliary lane queues are within storage length.

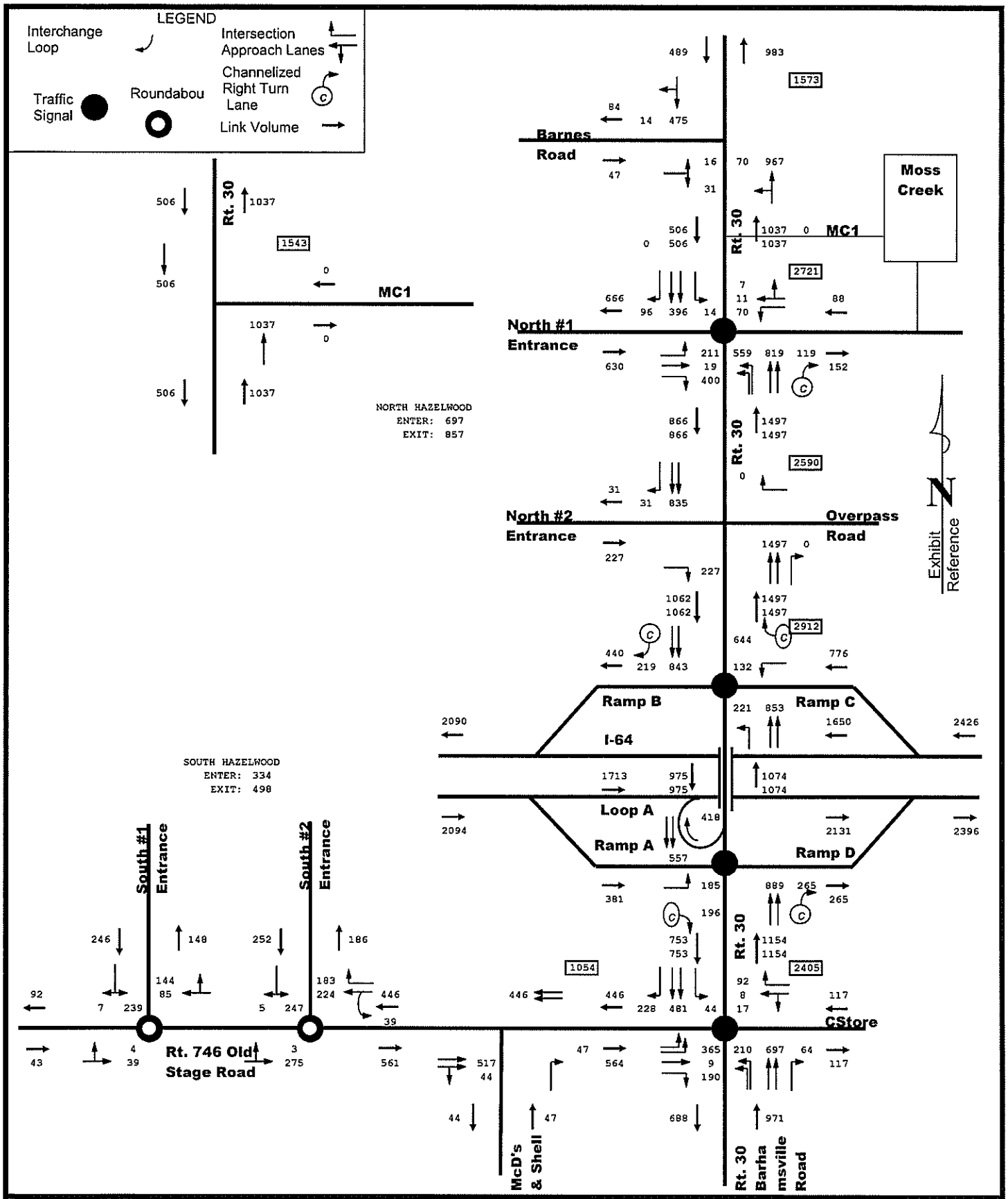
Exhibits 1c and 1d show LOS results on the network diagram.



2030 AM PEAK HOUR TOTAL TRAFFIC WITH HAZELWOOD FARMS
90 SECOND CYCLE ANALYSIS

DRW Consultants, LLC
804-794-7312

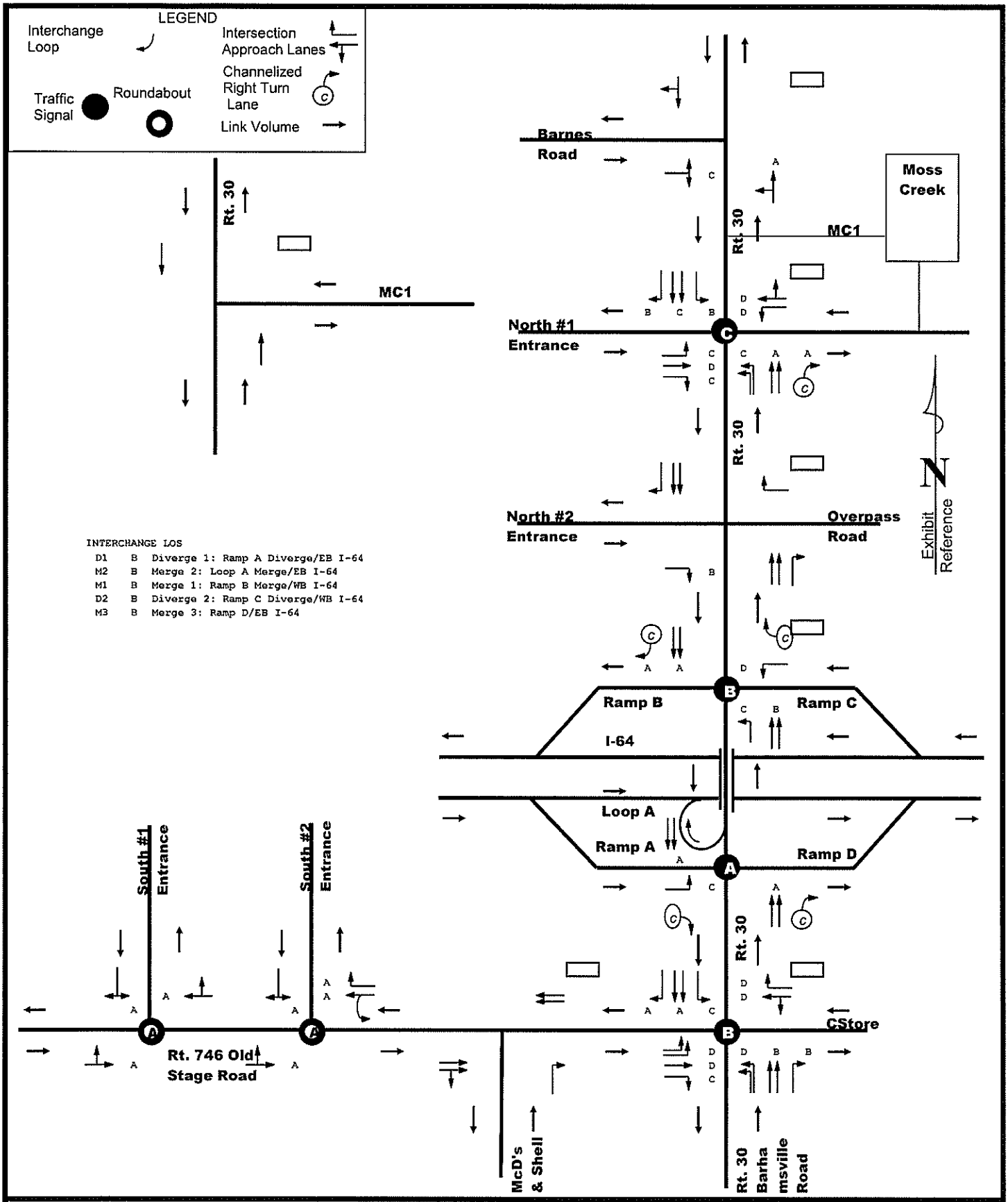
Exhibit 1a



2030 PM PEAK HOUR TOTAL TRAFFIC WITH HAZELWOOD FARMS
100 SECOND CYCLE ANALYSIS

DRW Consultants, LLC
804-794-7312

Exhibit 1b



INTERCHANGE LOS

D1	B	Diverge 1: Ramp A Diverge/EB I-64
M2	B	Merge 2: Loop A Merge/EB I-64
M1	B	Merge 1: Ramp B Merge/WB I-64
D2	B	Diverge 2: Ramp C Diverge/WB I-64
M3	B	Merge 3: Ramp D/EB I-64

2030 AM PEAK HOUR LEVEL OF SERVICE: 90 SECOND CYCLE
HAZELWOOD FARMS ONLY

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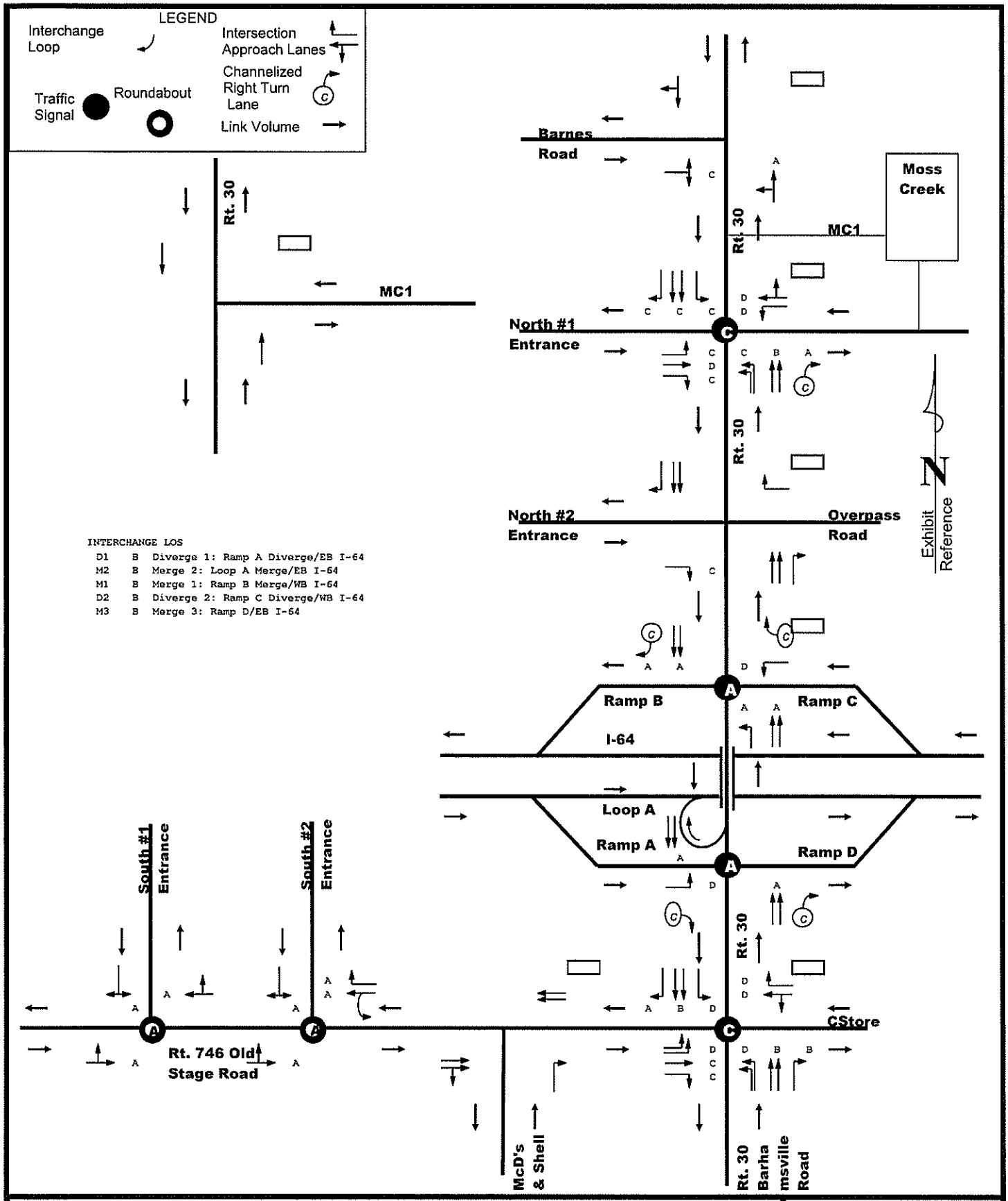
804-794-7312

Exhibit 1c



INTERCHANGE LOS

D1	B	Diverge 1: Ramp A Diverge/EB I-64
M2	B	Merge 2: Loop A Merge/EB I-64
M1	B	Merge 1: Ramp B Merge/WB I-64
D2	B	Diverge 2: Ramp C Diverge/WB I-64
M3	B	Merge 3: Ramp D/EB I-64

2030 PM PEAK HOUR LEVEL OF SERVICE: 100 SECOND CYCLE
HAZELWOOD FARMS ONLY

DRW Consultants, LLC
804-794-7312

Exhibit 1d

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	1	81	142	4	15	264	319	39	6	826	48
Future Volume (vph)	24	1	81	142	4	15	264	319	39	6	826	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		5.0	6.0	6.0	5.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.88		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	1900	1568	1805	1672		3433	3406	1538	1543	3471	1583
Flt Permitted	0.74	1.00	1.00	1.00	1.00		0.95	1.00	1.00	0.47	1.00	1.00
Satd. Flow (perm)	1414	1900	1568	1900	1672		3433	3406	1538	758	3471	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	1	88	154	4	16	287	347	42	7	898	52
RTOR Reduction (vph)	0	0	62	0	15	0	0	0	18	0	0	31
Lane Group Flow (vph)	26	1	26	154	5	0	287	347	24	7	898	21
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	2%	6%	5%	17%	4%	2%
Turn Type	pm+pt	NA	pt+ov	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	4 5	3	8		5	2		1	6	
Permitted Phases	4			8					2	6		6
Actuated Green, G (s)	19.1	5.6	26.5	13.7	2.9		15.9	51.2	51.2	36.7	36.7	36.7
Effective Green, g (s)	19.1	5.6	26.5	13.7	2.9		15.9	51.2	51.2	36.7	36.7	36.7
Actuated g/C Ratio	0.21	0.06	0.29	0.15	0.03		0.18	0.57	0.57	0.41	0.41	0.41
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	358	118	461	277	53		606	1937	874	321	1415	645
v/s Ratio Prot	c0.01	0.00	0.02	c0.07	0.00		c0.08	0.10		0.00	c0.26	
v/s Ratio Perm	0.00			c0.02					0.02	0.01		0.01
v/c Ratio	0.07	0.01	0.06	0.56	0.09		0.47	0.18	0.03	0.02	0.63	0.03
Uniform Delay, d1	28.4	39.6	22.8	34.1	42.3		33.3	9.3	8.5	16.0	21.3	16.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.01	1.04	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.1	2.4	0.7		0.6	0.2	0.1	0.0	2.2	0.1
Delay (s)	28.5	39.6	22.8	36.5	43.0		34.3	9.9	8.6	16.0	23.5	16.1
Level of Service	C	D	C	D	D		C	A	A	B	C	B
Approach Delay (s)		24.3			37.2			20.2			23.0	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	175	0	0	147	352	0	0	995	72
Future Volume (vph)	0	0	0	175	0	0	147	352	0	0	995	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.0			5.0	6.0			6.0	4.0
Lane Util. Factor				1.00			1.00	0.95			0.95	1.00
Frt				1.00			1.00	1.00			1.00	0.85
Flt Protected				0.95			0.95	1.00			1.00	1.00
Satd. Flow (prot)				1656			1719	3505			3471	1599
Flt Permitted				0.95			0.95	1.00			1.00	1.00
Satd. Flow (perm)				1656			1719	3505			3471	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	190	0	0	160	383	0	0	1082	78
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	190	0	0	160	383	0	0	1082	78
Heavy Vehicles (%)	2%	2%	2%	9%	0%	0%	5%	3%	2%	2%	4%	1%
Turn Type				Perm			Prot	NA			NA	Free
Protected Phases							5	2			6	
Permitted Phases				8								Free
Actuated Green, G (s)				15.0			13.0	64.0			46.0	90.0
Effective Green, g (s)				15.0			13.0	64.0			46.0	90.0
Actuated g/C Ratio				0.17			0.14	0.71			0.51	1.00
Clearance Time (s)				5.0			5.0	6.0			6.0	
Vehicle Extension (s)				3.0			3.0	3.0			3.0	
Lane Grp Cap (vph)				276			248	2492			1774	1599
v/s Ratio Prot							c0.09	0.11			c0.31	
v/s Ratio Perm				c0.11								0.05
v/c Ratio				0.69			0.65	0.15			0.61	0.05
Uniform Delay, d1				35.3			36.3	4.2			15.6	0.0
Progression Factor				1.00			0.73	0.52			0.31	1.00
Incremental Delay, d2				7.0			5.6	0.1			1.4	0.1
Delay (s)				42.3			32.3	2.3			6.2	0.1
Level of Service				D			C	A			A	A
Approach Delay (s)		0.0			42.3			11.1			5.8	
Approach LOS		A			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	101	0	0	398	625	0
Future Volume (vph)	101	0	0	398	625	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			6.0	6.0	
Lane Util. Factor	1.00			0.95	0.95	
Frt	1.00			1.00	1.00	
Flt Protected	0.95			1.00	1.00	
Satd. Flow (prot)	1770			3438	3438	
Flt Permitted	0.95			1.00	1.00	
Satd. Flow (perm)	1770			3438	3438	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	110	0	0	433	679	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	110	0	0	433	679	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	0%
Turn Type	Prot			NA	NA	
Protected Phases	7			2	6	
Permitted Phases						
Actuated Green, G (s)	9.6			69.4	69.4	
Effective Green, g (s)	9.6			69.4	69.4	
Actuated g/C Ratio	0.11			0.77	0.77	
Clearance Time (s)	5.0			6.0	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	188			2651	2651	
v/s Ratio Prot	c0.06			0.13	c0.20	
v/s Ratio Perm						
v/c Ratio	0.59			0.16	0.26	
Uniform Delay, d1	38.3			2.7	2.9	
Progression Factor	1.00			0.11	0.10	
Incremental Delay, d2	4.6			0.1	0.2	
Delay (s)	42.9			0.4	0.5	
Level of Service	D			A	A	
Approach Delay (s)	42.9			0.4	0.5	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	7	83	31	3	72	187	350	49	59	485	261
Future Volume (vph)	166	7	83	31	3	72	187	350	49	59	485	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0	5.0	6.0	6.0	5.0	6.0	6.0
Lane Util. Factor	0.97	1.00	1.00		1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3242	1900	1509		1817	1429	3183	3471	1392	1719	3406	1442
Flt Permitted	0.95	1.00	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3242	1900	1509		1817	1429	3183	3471	1392	1719	3406	1442
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	180	8	90	34	3	78	203	380	53	64	527	284
RTOR Reduction (vph)	0	0	63	0	0	72	0	0	30	0	0	121
Lane Group Flow (vph)	180	8	27	0	37	6	203	380	23	64	527	163
Heavy Vehicles (%)	8%	0%	7%	0%	0%	13%	10%	4%	16%	5%	6%	12%
Turn Type	Split	NA	pt+ov	Split	NA	Perm	Prot	NA	Perm	Prot	NA	pt+ov
Protected Phases	8	8	8 5	4	4		5	2		1	6	6 8
Permitted Phases						4			2			
Actuated Green, G (s)	10.6	10.6	26.6		6.4	6.4	11.0	38.4	38.4	13.6	41.0	51.6
Effective Green, g (s)	10.6	10.6	26.6		6.4	6.4	11.0	38.4	38.4	13.6	41.0	51.6
Actuated g/C Ratio	0.12	0.12	0.30		0.07	0.07	0.12	0.43	0.43	0.15	0.46	0.57
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0	6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	381	223	445		129	101	389	1480	593	259	1551	826
v/s Ratio Prot	c0.06	0.00	0.02		c0.02		c0.06	0.11		0.04	c0.15	0.11
v/s Ratio Perm						0.00			0.02			
v/c Ratio	0.47	0.04	0.06		0.29	0.05	0.52	0.26	0.04	0.25	0.34	0.20
Uniform Delay, d1	37.1	35.2	22.7		39.6	39.0	37.0	16.6	15.0	33.7	15.8	9.2
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.59	0.44	0.81
Incremental Delay, d2	0.9	0.1	0.1		1.2	0.2	1.3	0.4	0.1	0.5	0.6	0.1
Delay (s)	38.0	35.2	22.8		40.9	39.2	38.3	17.0	15.2	20.4	7.5	7.6
Level of Service	D	D	C		D	D	D	B	B	C	A	A
Approach Delay (s)		33.0			39.7			23.7			8.5	
Approach LOS		C			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	19	400	70	11	7	559	819	119	14	396	96
Future Volume (vph)	211	19	400	70	11	7	559	819	119	14	396	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		5.0	6.0	6.0	5.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1900	1583	1752	1786		3433	3471	1615	1805	3471	1599
Flt Permitted	0.51	1.00	1.00	1.00	1.00		0.95	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)	965	1900	1583	1845	1786		3433	3471	1615	279	3471	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	229	21	435	76	12	8	608	890	129	15	430	104
RTOR Reduction (vph)	0	0	127	0	8	0	0	0	59	0	0	72
Lane Group Flow (vph)	229	21	308	76	12	0	608	890	70	15	430	32
Heavy Vehicles (%)	1%	0%	2%	3%	0%	0%	2%	4%	0%	0%	4%	1%
Turn Type	pm+pt	NA	pt+ov	pm+pt	NA		Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	4 5	3	8		5	2		1	6	
Permitted Phases	4			8					2	6		6
Actuated Green, G (s)	26.8	16.2	42.8	8.4	2.8		26.6	54.4	54.4	30.6	30.6	30.6
Effective Green, g (s)	26.8	16.2	42.8	8.4	2.8		26.6	54.4	54.4	30.6	30.6	30.6
Actuated g/C Ratio	0.27	0.16	0.43	0.08	0.03		0.27	0.54	0.54	0.31	0.31	0.31
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	414	307	677	149	50		913	1888	878	128	1062	489
v/s Ratio Prot	c0.10	0.01	0.19	0.03	0.01		c0.18	c0.26		0.00	c0.12	
v/s Ratio Perm	c0.04			0.01					0.04	0.03		0.02
v/c Ratio	0.55	0.07	0.45	0.51	0.24		0.67	0.47	0.08	0.12	0.40	0.07
Uniform Delay, d1	30.8	35.5	20.3	43.9	47.6		32.7	14.0	10.9	25.4	27.5	24.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.87	0.66	0.11	1.00	1.00	1.00
Incremental Delay, d2	1.6	0.1	0.5	2.9	2.5		1.8	0.8	0.2	0.4	1.1	0.3
Delay (s)	32.4	35.6	20.8	46.8	50.1		30.4	10.1	1.4	25.9	28.6	24.8
Level of Service	C	D	C	D	D		C	B	A	C	C	C
Approach Delay (s)		25.1			47.5			17.0			27.8	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	132	0	0	221	853	0	0	843	219
Future Volume (vph)	0	0	0	132	0	0	221	853	0	0	843	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.0			5.0	6.0			6.0	4.0
Lane Util. Factor				1.00			1.00	0.95			0.95	1.00
Frt				1.00			1.00	1.00			1.00	0.85
Flt Protected				0.95			0.95	1.00			1.00	1.00
Satd. Flow (prot)				1719			1703	3505			3505	1583
Flt Permitted				0.95			0.25	1.00			1.00	1.00
Satd. Flow (perm)				1719			445	3505			3505	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	143	0	0	240	927	0	0	916	238
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	143	0	0	240	927	0	0	916	238
Heavy Vehicles (%)	2%	2%	2%	5%	0%	0%	6%	3%	2%	2%	3%	2%
Turn Type				Perm			pm+pt	NA			NA	Free
Protected Phases							5	2			6	
Permitted Phases				8			2					Free
Actuated Green, G (s)				13.4			75.6	75.6			60.7	100.0
Effective Green, g (s)				13.4			75.6	75.6			60.7	100.0
Actuated g/C Ratio				0.13			0.76	0.76			0.61	1.00
Clearance Time (s)				5.0			5.0	6.0			6.0	
Vehicle Extension (s)				3.0			3.0	3.0			3.0	
Lane Grp Cap (vph)				230			460	2649			2127	1583
v/s Ratio Prot							c0.05	0.26			0.26	
v/s Ratio Perm				c0.08			c0.34					0.15
v/c Ratio				0.62			0.52	0.35			0.43	0.15
Uniform Delay, d1				40.9			5.0	4.0			10.5	0.0
Progression Factor				1.00			1.77	1.77			0.78	1.00
Incremental Delay, d2				5.1			1.0	0.3			0.6	0.2
Delay (s)				46.1			9.9	7.5			8.8	0.2
Level of Service				D			A	A			A	A
Approach Delay (s)		0.0			46.1			8.0			7.0	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	185	0	0	889	557	0
Future Volume (vph)	185	0	0	889	557	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			6.0	6.0	
Lane Util. Factor	1.00			0.95	0.95	
Frt	1.00			1.00	1.00	
Flt Protected	0.95			1.00	1.00	
Satd. Flow (prot)	1752			3505	3471	
Flt Permitted	0.95			1.00	1.00	
Satd. Flow (perm)	1752			3505	3471	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	0	0	966	605	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	201	0	0	966	605	0
Heavy Vehicles (%)	3%	2%	2%	3%	4%	0%
Turn Type	Prot			NA	NA	
Protected Phases	7			2	6	
Permitted Phases						
Actuated Green, G (s)	16.8			72.2	72.2	
Effective Green, g (s)	16.8			72.2	72.2	
Actuated g/C Ratio	0.17			0.72	0.72	
Clearance Time (s)	5.0			6.0	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	294			2530	2506	
v/s Ratio Prot	c0.11			c0.28	0.17	
v/s Ratio Perm						
v/c Ratio	0.68			0.38	0.24	
Uniform Delay, d1	39.1			5.3	4.7	
Progression Factor	1.00			0.22	1.75	
Incremental Delay, d2	6.4			0.4	0.2	
Delay (s)	45.5			1.5	8.4	
Level of Service	D			A	A	
Approach Delay (s)	45.5			1.5	8.4	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	365	9	190	17	8	92	210	697	64	44	481	228
Future Volume (vph)	365	9	190	17	8	92	210	697	64	44	481	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0	5.0	6.0	6.0	5.0	6.0	6.0
Lane Util. Factor	0.97	1.00	1.00		1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3242	1712	1482		1762	1583	3367	3539	1538	1770	3505	1538
Flt Permitted	0.95	1.00	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3242	1712	1482		1762	1583	3367	3539	1538	1770	3505	1538
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	397	10	207	18	9	100	228	758	70	48	523	248
RTOR Reduction (vph)	0	0	138	0	0	94	0	0	36	0	0	104
Lane Group Flow (vph)	397	10	69	0	27	6	228	758	34	48	523	144
Heavy Vehicles (%)	8%	11%	9%	0%	13%	2%	4%	2%	5%	2%	3%	5%
Turn Type	Split	NA	pt+ov	Split	NA	Perm	Prot	NA	Perm	Prot	NA	pt+ov
Protected Phases	8	8	8 5	4	4		5	2		1	6	6 8
Permitted Phases						4			2			
Actuated Green, G (s)	18.8	18.8	33.4		6.2	6.2	14.6	48.8	48.8	5.2	39.4	63.2
Effective Green, g (s)	18.8	18.8	33.4		6.2	6.2	14.6	48.8	48.8	5.2	39.4	58.2
Actuated g/C Ratio	0.19	0.19	0.33		0.06	0.06	0.15	0.49	0.49	0.05	0.39	0.58
Clearance Time (s)	5.0	5.0			5.0	5.0	5.0	6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	609	321	494		109	98	491	1727	750	92	1380	895
v/s Ratio Prot	c0.12	0.01	0.05		c0.02		c0.07	c0.21		0.03	0.15	0.09
v/s Ratio Perm						0.00			0.02			
v/c Ratio	0.65	0.03	0.14		0.25	0.06	0.46	0.44	0.05	0.52	0.38	0.16
Uniform Delay, d1	37.6	33.2	23.3		44.7	44.2	39.1	16.7	13.4	46.2	21.6	9.6
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.90	0.60	0.27
Incremental Delay, d2	2.5	0.0	0.1		1.2	0.3	0.7	0.8	0.1	5.2	0.8	0.1
Delay (s)	40.1	33.2	23.4		45.9	44.4	39.8	17.5	13.5	46.7	13.8	2.7
Level of Service	D	C	C		D	D	D	B	B	D	B	A
Approach Delay (s)		34.3			44.7			22.0			12.3	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	76	16	342	804	13
Future Vol, veh/h	14	76	16	342	804	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	8	6	6	4	0
Mvmt Flow	15	83	17	372	874	14

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1287	881	888	0	-	0
Stage 1	881	-	-	-	-	-
Stage 2	406	-	-	-	-	-
Critical Hdwy	6.4	6.28	4.16	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.372	2.254	-	-	-
Pot Cap-1 Maneuver	183	337	746	-	-	-
Stage 1	408	-	-	-	-	-
Stage 2	677	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	178	337	746	-	-	-
Mov Cap-2 Maneuver	178	-	-	-	-	-
Stage 1	396	-	-	-	-	-
Stage 2	677	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.1	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	746	-	296	-	-
HCM Lane V/C Ratio	0.023	-	0.33	-	-
HCM Control Delay (s)	9.9	0	23.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1.4	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱		↑↑	↑↑	↱
Traffic Vol, veh/h	0	37	0	622	1030	19
Future Vol, veh/h	0	37	0	622	1030	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	3	3	3
Mvmt Flow	0	40	0	676	1120	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	560	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	472	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	472	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	472	-	-
HCM Lane V/C Ratio	-	0.085	-	-
HCM Control Delay (s)	-	13.3	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.3	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	31	70	967	475	14
Future Vol, veh/h	16	31	70	967	475	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	3	6	3	4	0
Mvmt Flow	17	34	76	1051	516	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1727	524	531	0	-	0
Stage 1	524	-	-	-	-	-
Stage 2	1203	-	-	-	-	-
Critical Hdwy	6.46	6.23	4.16	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.327	2.254	-	-	-
Pot Cap-1 Maneuver	95	551	1016	-	-	-
Stage 1	586	-	-	-	-	-
Stage 2	279	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	78	551	1016	-	-	-
Mov Cap-2 Maneuver	78	-	-	-	-	-
Stage 1	481	-	-	-	-	-
Stage 2	279	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	32.7	0.6	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1016	-	180	-	-
HCM Lane V/C Ratio	0.075	-	0.284	-	-
HCM Control Delay (s)	8.8	0	32.7	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.2	-	1.1	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱		↑↑	↑↑	↱
Traffic Vol, veh/h	0	227	0	1497	778	31
Future Vol, veh/h	0	227	0	1497	778	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	3	3	3
Mvmt Flow	0	247	0	1627	846	34

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	423	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	579	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	579	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	579	-	-
HCM Lane V/C Ratio	-	0.426	-	-
HCM Control Delay (s)	-	15.8	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	2.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	26	1	88	154	20	287	347	42	7	898	52
v/c Ratio	0.12	0.01	0.15	0.55	0.14	0.63	0.16	0.04	0.02	0.56	0.06
Control Delay	30.1	38.0	0.6	39.9	22.9	44.1	9.3	0.1	15.2	20.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	38.0	0.6	39.9	22.9	44.1	9.3	0.1	15.2	20.5	0.1
Queue Length 50th (ft)	14	1	0	83	2	70	36	0	2	212	0
Queue Length 95th (ft)	31	5	0	122	24	109	107	1	11	276	0
Internal Link Dist (ft)		808			693		749			365	
Turn Bay Length (ft)			200			300		350	150		200
Base Capacity (vph)	214	147	548	342	273	495	2125	1037	420	1608	850
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.01	0.16	0.45	0.07	0.58	0.16	0.04	0.02	0.56	0.06

Intersection Summary

Lane Group	WBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	190	160	383	1082	78
v/c Ratio	0.69	0.65	0.15	0.61	0.05
Control Delay	47.9	38.6	2.5	6.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	38.6	2.5	6.8	0.1
Queue Length 50th (ft)	102	92	14	38	0
Queue Length 95th (ft)	166	141	37	101	m0
Internal Link Dist (ft)			858	722	
Turn Bay Length (ft)		200			300
Base Capacity (vph)	349	305	2491	1773	1599
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.52	0.15	0.61	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	110	433	679
v/c Ratio	0.51	0.16	0.25
Control Delay	44.6	0.5	0.5
Queue Delay	0.0	0.0	0.0
Total Delay	44.6	0.5	0.5
Queue Length 50th (ft)	60	3	1
Queue Length 95th (ft)	106	5	0
Internal Link Dist (ft)	181	207	319
Turn Bay Length (ft)			
Base Capacity (vph)	472	2735	2735
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.23	0.16	0.25

Intersection Summary

Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	180	8	90	37	78	203	380	53	64	527	284
v/c Ratio	0.47	0.04	0.16	0.24	0.23	0.52	0.24	0.07	0.22	0.33	0.29
Control Delay	40.8	34.0	0.6	41.7	1.6	41.7	19.9	0.2	19.8	8.1	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	34.0	0.6	41.7	1.6	41.7	19.9	0.2	19.8	8.1	1.5
Queue Length 50th (ft)	49	4	0	20	0	56	77	0	29	61	0
Queue Length 95th (ft)	80	17	0	49	0	87	129	0	51	87	3
Internal Link Dist (ft)		584		306			932			541	
Turn Bay Length (ft)	200		200			200		200	200		
Base Capacity (vph)	468	274	584	201	363	495	1627	736	310	1590	994
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.03	0.15	0.18	0.21	0.41	0.23	0.07	0.21	0.33	0.29

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	229	21	435	76	20	608	890	129	15	430	104
v/c Ratio	0.59	0.08	0.58	0.44	0.15	0.75	0.42	0.12	0.07	0.34	0.15
Control Delay	38.1	34.5	9.5	40.3	34.9	36.9	9.8	0.3	28.0	27.2	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	34.5	9.5	40.3	34.9	36.9	9.8	0.3	28.0	27.2	0.4
Queue Length 50th (ft)	133	13	77	48	7	194	91	1	6	99	0
Queue Length 95th (ft)	172	30	86	65	31	210	148	2	25	183	0
Internal Link Dist (ft)		808			693		749			365	
Turn Bay Length (ft)			200			300		350	150		200
Base Capacity (vph)	492	494	941	174	132	961	2095	1048	211	1269	709
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.04	0.46	0.44	0.15	0.63	0.42	0.12	0.07	0.34	0.15

Intersection Summary

Lane Group	WBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	143	240	927	916	238
v/c Ratio	0.62	0.52	0.35	0.43	0.15
Control Delay	52.3	10.3	8.2	9.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	10.3	8.2	9.7	0.2
Queue Length 50th (ft)	87	38	138	124	0
Queue Length 95th (ft)	144	93	227	168	0
Internal Link Dist (ft)			858	722	
Turn Bay Length (ft)		200			300
Base Capacity (vph)	309	630	2649	2126	1583
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.38	0.35	0.43	0.15

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	201	966	605
v/c Ratio	0.68	0.38	0.24
Control Delay	50.5	1.7	9.3
Queue Delay	0.0	0.0	0.0
Total Delay	50.5	1.7	9.3
Queue Length 50th (ft)	122	6	147
Queue Length 95th (ft)	183	14	157
Internal Link Dist (ft)	181	207	319
Turn Bay Length (ft)			
Base Capacity (vph)	543	2529	2505
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.37	0.38	0.24

Intersection Summary

Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	397	10	207	27	100	228	758	70	48	523	248
v/c Ratio	0.65	0.03	0.33	0.20	0.40	0.54	0.41	0.08	0.34	0.35	0.23
Control Delay	42.3	30.8	3.2	46.8	7.7	45.3	18.9	0.3	45.5	14.0	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.3	30.8	3.2	46.8	7.7	45.3	18.9	0.3	45.5	14.0	0.8
Queue Length 50th (ft)	121	5	0	17	0	70	173	0	32	48	2
Queue Length 95th (ft)	162	19	29	43	22	105	257	3	68	127	6
Internal Link Dist (ft)		584		306			932			541	
Turn Bay Length (ft)	200		200			200		200	200		
Base Capacity (vph)	745	393	683	158	271	486	1832	859	159	1496	1085
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.03	0.30	0.17	0.37	0.47	0.41	0.08	0.30	0.35	0.23

Intersection Summary

Intersection: 1: Route 30 & North #1/Fieldstone Pkwy

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	L	T	T
Maximum Queue (ft)	63	12	108	189	45	139	162	148	20	37	170	216
Average Queue (ft)	17	1	44	94	14	73	97	44	1	3	85	116
95th Queue (ft)	46	6	90	156	38	122	145	106	10	20	147	182
Link Distance (ft)	808	808		675	675			748	748		365	365
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			200			300	300			150		
Storage Blk Time (%)											0	0
Queuing Penalty (veh)											0	0

Intersection: 1: Route 30 & North #1/Fieldstone Pkwy

Movement	SB
Directions Served	R
Maximum Queue (ft)	49
Average Queue (ft)	14
95th Queue (ft)	41
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	200
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Route 30 & Ramp B To I-64 WB/Ramp From I-64 WB

Movement	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	T	T	T
Maximum Queue (ft)	106	198	167	80	145	265
Average Queue (ft)	88	96	45	13	42	119
95th Queue (ft)	112	169	119	49	105	221
Link Distance (ft)	89		869	869	700	700
Upstream Blk Time (%)	29					
Queuing Penalty (veh)	51					
Storage Bay Dist (ft)		200				
Storage Blk Time (%)		1	0			0
Queuing Penalty (veh)		1	0			0

Intersection: 3: Route 30 & Ramp From I-64 EB

Movement	EB	NB	NB	SB	SB
Directions Served	L	T	T	T	T
Maximum Queue (ft)	141	66	58	62	89
Average Queue (ft)	59	14	10	14	23
95th Queue (ft)	110	48	40	45	68
Link Distance (ft)	151	179	179	309	309
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Route 30 & Old Stage Road/Convenience Store

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	L	T	R	LT	R	L	L	T	T	R	L
Maximum Queue (ft)	111	145	44	124	79	79	156	143	130	140	39	118
Average Queue (ft)	46	68	5	46	27	29	59	56	41	40	3	34
95th Queue (ft)	92	119	26	99	63	61	123	112	96	101	19	83
Link Distance (ft)		482	482		305	305			914	914		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			200			200	200			200	200
Storage Blk Time (%)		0					0		0			
Queuing Penalty (veh)		0					0		0			

Intersection: 4: Route 30 & Old Stage Road/Convenience Store

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	106	130	131
Average Queue (ft)	33	41	38
95th Queue (ft)	81	95	96
Link Distance (ft)	551	551	551
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Route 30 & Ramp From I-64 EB/Ramp D To I-64 EB

Movement	EB
Directions Served	R
Maximum Queue (ft)	3
Average Queue (ft)	0
95th Queue (ft)	3
Link Distance (ft)	271
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Route 30 & Loop A to I-64 EB

Movement	SB
Directions Served	R
Maximum Queue (ft)	67
Average Queue (ft)	10
95th Queue (ft)	41
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	50
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 7: Route 30 & Barnes Road

Movement	EB	NB	B16	SB
Directions Served	LR	LT	T	TR
Maximum Queue (ft)	110	145	6	3
Average Queue (ft)	47	22	0	0
95th Queue (ft)	89	87	6	3
Link Distance (ft)	936	112	329	1180
Upstream Blk Time (%)		1		
Queuing Penalty (veh)		2		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Route 30

Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: Ramp C From I-64 WB & Ramp From I-64 WB

Movement	NW
Directions Served	L
Maximum Queue (ft)	188
Average Queue (ft)	59
95th Queue (ft)	162
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	400
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: Route 30 & Ramp From I-64 WB

Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: Ramp From I-64 EB & Ramp A From I-64 EB

Movement	EB
Directions Served	TR
Maximum Queue (ft)	24
Average Queue (ft)	1
95th Queue (ft)	20
Link Distance (ft)	1148
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 27: Route 30 & North #2

Movement	EB
Directions Served	R
Maximum Queue (ft)	49
Average Queue (ft)	18
95th Queue (ft)	40
Link Distance (ft)	811
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 28: Old Stage Road & South #2

Movement	EB	WB	WB	SB
Directions Served	LT	UT	R	LR
Maximum Queue (ft)	65	34	5	56
Average Queue (ft)	11	2	0	15
95th Queue (ft)	42	16	5	42
Link Distance (ft)	385	482	482	916
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 34: Old Stage Road & South #1

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	42	20	49
Average Queue (ft)	3	1	4
95th Queue (ft)	21	9	24
Link Distance (ft)	403	385	895
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 55

Intersection: 1: Route 30 & North #1/Fieldstone Pkwy

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	L	T	T	L	T	T
Maximum Queue (ft)	211	160	274	115	56	229	395	508	434	50	166	195
Average Queue (ft)	115	18	138	53	14	133	165	237	36	13	80	103
95th Queue (ft)	193	94	236	100	42	204	286	427	215	40	136	169
Link Distance (ft)	808	808		675	675			748	748		365	365
Upstream Blk Time (%)								0	0			
Queuing Penalty (veh)								1	0			
Storage Bay Dist (ft)			200			300	300			150		
Storage Blk Time (%)			3					5	0		0	0
Queuing Penalty (veh)			1					30	0		0	0

Intersection: 1: Route 30 & North #1/Fieldstone Pkwy

Movement	SB
Directions Served	R
Maximum Queue (ft)	75
Average Queue (ft)	33
95th Queue (ft)	64
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	200
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Route 30 & Ramp B To I-64 WB/Ramp From I-64 WB

Movement	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	T	T	T
Maximum Queue (ft)	100	197	193	136	141	252
Average Queue (ft)	79	91	74	39	51	117
95th Queue (ft)	111	165	153	99	114	210
Link Distance (ft)	89		869	869	700	700
Upstream Blk Time (%)	18					
Queuing Penalty (veh)	24					
Storage Bay Dist (ft)		200				
Storage Blk Time (%)		0	0			0
Queuing Penalty (veh)		2	0			0

Intersection: 3: Route 30 & Ramp From I-64 EB

Movement	EB	NB	NB	SB	SB
Directions Served	L	T	T	T	T
Maximum Queue (ft)	161	117	101	96	121
Average Queue (ft)	110	30	22	35	41
95th Queue (ft)	168	84	68	80	95
Link Distance (ft)	151	179	179	309	309
Upstream Blk Time (%)	4				
Queuing Penalty (veh)	7				
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Route 30 & Old Stage Road/Convenience Store

Movement	EB	EB	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	L	T	R	LT	R	L	L	T	T	R	L
Maximum Queue (ft)	200	227	41	206	62	90	129	114	192	207	27	78
Average Queue (ft)	108	122	7	90	20	36	56	52	82	84	2	25
95th Queue (ft)	175	192	29	167	51	69	109	100	158	166	14	62
Link Distance (ft)		482	482		305	305			914	914		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			200			200	200			200	200
Storage Blk Time (%)	1	1		1					0	0		
Queuing Penalty (veh)	1	1		0					0	0		

Intersection: 4: Route 30 & Old Stage Road/Convenience Store

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	120	122	122
Average Queue (ft)	50	53	36
95th Queue (ft)	101	106	91
Link Distance (ft)	551	551	551
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Route 30 & Ramp From I-64 EB/Ramp D To I-64 EB

Movement	SB
Directions Served	T
Maximum Queue (ft)	3
Average Queue (ft)	0
95th Queue (ft)	3
Link Distance (ft)	179
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Route 30 & Loop A to I-64 EB

Movement	SB
Directions Served	R
Maximum Queue (ft)	40
Average Queue (ft)	2
95th Queue (ft)	17
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	50
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 7: Route 30 & Barnes Road

Movement	EB	NB	B16	B8	SB
Directions Served	LR	LT	T	T	TR
Maximum Queue (ft)	109	184	139	10	6
Average Queue (ft)	36	70	7	0	0
95th Queue (ft)	82	169	71	10	6
Link Distance (ft)	936	112	317	539	1180
Upstream Blk Time (%)		2	0		
Queuing Penalty (veh)		25	1		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 13: Ramp C From I-64 WB & Ramp From I-64 WB

Movement	NW
Directions Served	L
Maximum Queue (ft)	148
Average Queue (ft)	30
95th Queue (ft)	103
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	400
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: Route 30 & Ramp From I-64 WB

Movement	NB	NB	NW
Directions Served	T	T	R
Maximum Queue (ft)	47	16	57
Average Queue (ft)	2	1	3
95th Queue (ft)	23	10	32
Link Distance (ft)	700	700	773
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: Ramp From I-64 EB & Ramp A From I-64 EB

Movement	EB
Directions Served	TR
Maximum Queue (ft)	100
Average Queue (ft)	9
95th Queue (ft)	53
Link Distance (ft)	1148
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 27: Route 30 & North #2

Movement	EB	NB	NB	B9	B9	B9
Directions Served	R	T	T	T	T	
Maximum Queue (ft)	156	34	17	474	517	333
Average Queue (ft)	61	2	1	34	42	22
95th Queue (ft)	116	28	17	245	270	199
Link Distance (ft)	811	170	170	511	511	511
Upstream Blk Time (%)		0	0	0	0	0
Queuing Penalty (veh)		1	0	1	1	1
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 28: Old Stage Road & South #2

Movement	EB	WB	SB
Directions Served	LT	UT	LR
Maximum Queue (ft)	111	16	106
Average Queue (ft)	42	1	36
95th Queue (ft)	87	10	82
Link Distance (ft)	385	482	916
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 34: Old Stage Road & South #1

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	38	3	78
Average Queue (ft)	7	0	19
95th Queue (ft)	30	3	59
Link Distance (ft)	403	385	895
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 97

RESOLUTION

JAMES CITY COUNTY ECONOMIC OPPORTUNITY DISTRICT

CONSTRUCTION PHASING GUIDELINES

WHEREAS, the task of creating the Economic Opportunity Zoning District was undertaken as a part of the Board of Supervisors adopted methodology for the zoning ordinance update in May 2010; and

WHEREAS, the 2009 Comprehensive Plan referenced the importance of construction phasing to ensure residential development did not take place before a majority of commercial/industrial development was completed; and

WHEREAS, after meeting with the Policy Committee, the Planning Commission, and the Board of Supervisors, the following policy is recommended for all Economic Opportunity area development.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, does hereby endorse the following:

Construction within the Economic Opportunity development shall be sequenced in accordance with a project build-out schedule submitted for review as a part of the initial application, and approved by the board of supervisors. As a guideline, project proposals that adhere to the following sequencing requirements will be considered consistent with the objectives of the phasing plan:

1. Building permits for 20 percent of the primary workplace square footage, as proposed on the master plan, must be issued prior to commencing any residential construction; and

2. Any certificate of occupancy must be issued for at least 50 percent of the primary workplace square footage, as designated on the master plan, prior to building permits being issued for any residential unit above 50 percent of the total proposed units as shown on the master plan; and

3. Prior to issuance of building permits for construction of the final 10 percent of the residential units, any certificates of occupancy must be issued for at least 90 percent of the primary workplace square footage as shown on the master plan.

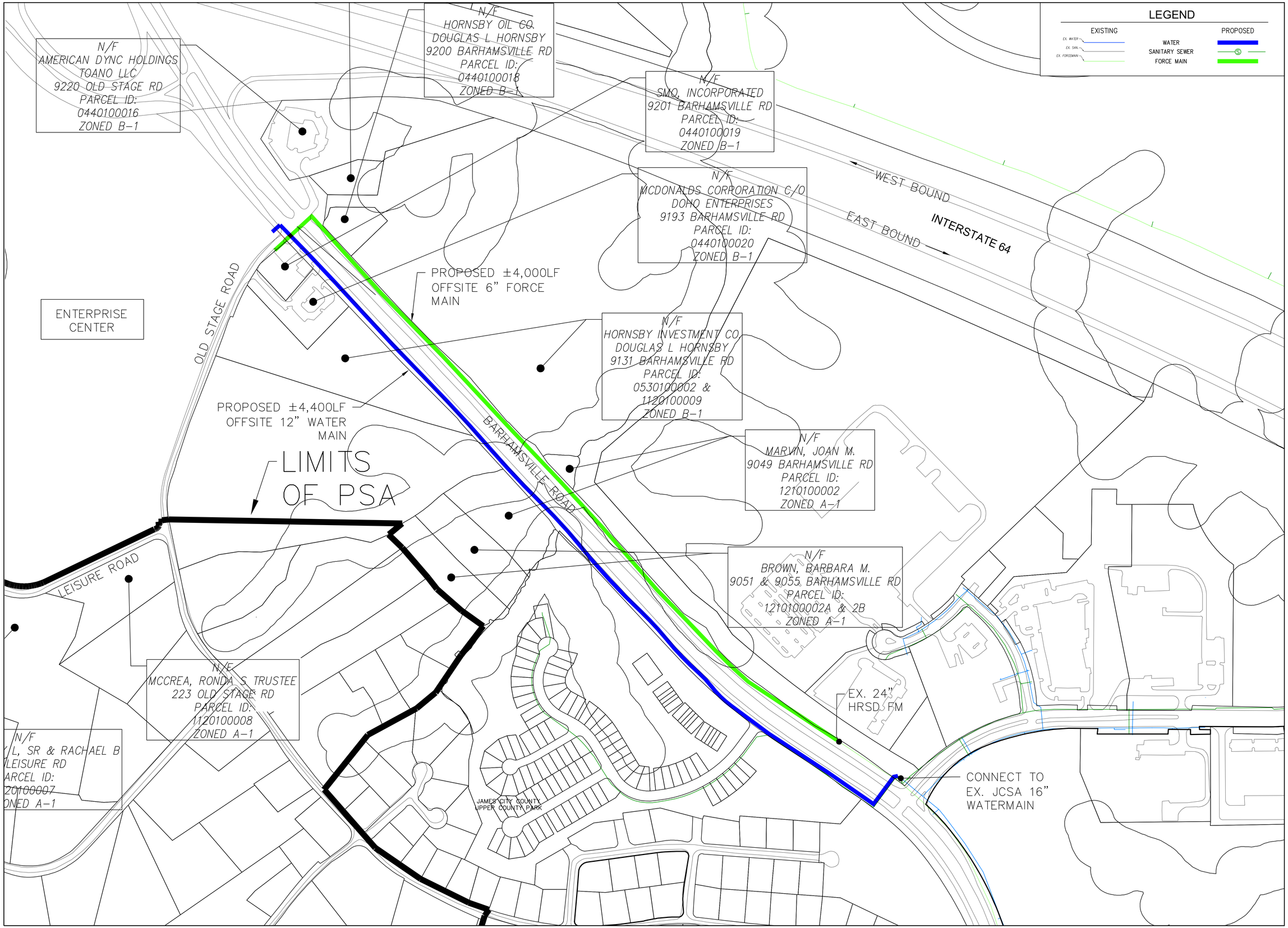
Mary K. Jones
Chairman, Board of Supervisors

ATTEST:

Robert C. Middaugh
Clerk to the Board

Adopted by the Board of Supervisors of James City County, Virginia, this 13th day of September, 2011.

EOConsGLs_res



Rev.	Date	Description	Revised By

AES CONSULTING ENGINEERS
5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
Phone: (757) 253-0040
Fax: (757) 220-9894
www.aesva.com
Hampton Roads | Central Virginia | Middle Peninsula

CONCEPTUAL PLAN

HAZELWOOD FARMS

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	GAM
Project Number:	W10325-00
Scale: 1"=200'	Date: 10/5/16

Sheet Title:

CONCEPTUAL OFFSITE UTILITY LAYOUT

Sheet Number

-

S:\JOB\W10325\00-Hazelwood Farms\Planning\Conceptual & Preliminary\W10325\0-conceptual utility | offsite.dwg 9/10/2016 8:59:18 AM| jaeng|ams

Thomas Wysong

From: Paul Holt
Sent: Wednesday, August 25, 2021 10:28 AM
To: Thomas Wysong
Cc: Josh Crump
Subject: FW: [External] No Truck Stops

Citizen input for staff report

On Aug 24, 2021, at 2:48 PM, Ken Siegel <kensiegel2@aol.com> wrote:

I am writing with regard to the proposed Truck Stop off Exit 227. I am sure you realize that Toano and Historic Toano on one side and Stonehouse and other expensive neighborhoods on the other side will be greatly impacted by significant pollution, noise pollution, and unwanted people, traffic, and crime that a Truck Stop will bring. If you look at historical information regarding Truck Stops, once one is allowed, other approvals will follow shortly afterwards.

There is no reason what so ever that James City County and Toano need a Truck Stop of any kind or size. 64 has several Truck Stops just a few miles up the road in addition to the two Truck Rest Areas at exit 214. Truckers do not need additional places to stop anywhere in between exit 211 to Newport News. Please vote NO to keep our area free from these types of businesses. This is not what we need to represent the entrance to James City County and the Toano local community.

Thank you,

Ken

<IMG_9465.tiff>

September 21, 2021

Planning Commission Members James City County
Mr. Richard Krapf
Mr. Bob Rose
Ms. Julia Leverenz
Mr. Jack Halderman
Mr. Tim O'Connor
Mr. Frank Polster
Ms. Barbara Null

Ref: Z-19-0006 / SUP-19-0005 Hazelwood Farms – The Enterprise Center
SUP-19-0006 Hazelwood Farms – The Village Center

Dear Members and Staff:

Regarding the above referenced rezoning and Special Use Permit I want to provide my full support and ask for an affirmative vote from the Planning Commission. Due to a previous commitment, I am out of town at the October meeting. Please do not take my lack of attendance nor my failure to publicly speak at the hearing as a lack of enthusiasm for this project. I support the project and urge support from each member of the Planning Commission.

We are fortunate that the Hazelwood family has been a good steward of the property. They have maintained the property in a large tract. They have tended the land to be sure that it is available for a more desirable use. Strategically located at the 227 interchange on I-64 the referenced development has few traffic impacts. The property can be a tax generating asset to the community. It can help maintain the quality of life for our community by contributing to our tax revenues and provide employment opportunities for our citizens.

Important quality points that I urge you to consider in your approval are:

- The project is conveniently located to Richmond airport and the Newport News Williamsburg airport
- The entire project is within the Primary Service Area
- Water and sewer are available for the project
- Immediate access to exit 227 on interstate 64 allows the change in Land Use to add tax dollars to our community without additional traffic burdens.

- The property is already assembled in two large contiguous tracts with common ownership. These parcels have been assembled and maintained by the Hazelwood family. Now with willing family members, who share a quality vision James City County can move forward and make a Land Use change that can benefit our citizens.

In recent years there has been a cry from citizens of "No Growth" or "No Rezoning". Those cries regarding this proposal would be out of place and incorrect. The proposed rezoning adds jobs, tax base, and additional citizens in a mix that is healthy for a vibrant community. Saying "No" to quality Land Use changes is a mistake.

In addition, you must look at what might happen if you said "No" to this opportunity. The land holding could become fragmented. Undesirable uses could be developed that would have less controls by the county and produce less tax income for our citizens.

This is a quality proposal with benefits for our citizens. I urge the Planning Commission to vote to approve the above referenced Rezoning and Special Use Permit.

Sincerely,

Gary M. Massie
Manager
J.S.G. Corporation

Thomas Wysong

From: Paul Holt
Sent: Monday, September 27, 2021 11:56 AM
To: Thomas Wysong
Cc: Josh Crump
Subject: FW: [External] Hazelwood Farm Proposal

Please include with staff report materials

From: Scott Maye <forensicearl@gmail.com>
Date: September 27, 2021 at 11:17:02 AM EDT
To: Sue Sadler <Sue.Sadler@jamescitycountyva.gov>
Subject: [External] Hazelwood Farm Proposal

Good morning Ms. Sadler,
I am a resident of Toano and live in the Meadow Lake subdivision adjacent to the proposed development. I am working with a group of concerned neighbors to oppose this development. A small group of us are meeting next week to develop a plan to speak at the upcoming public meeting. Based on my communications with my neighbors including residents of skillman estates and stonehouse there is a lot of opposion to this project as proposed. I am all for development, however, this project as proposed, specifically the Enterprise Center, is not suited for this location. There is an undeveloped Commerce Center right down the street more suitable for manufacturing. There are many many concerns regarding this proposal that are too lengthy for this email. I just wanted to share my opposition with you and I appreciate your service to the Stonehouse District. Thanks, Scott Maye

Thomas Wysong

From: Paxton Condon
Sent: Tuesday, September 28, 2021 3:54 PM
To: Thomas Wysong
Subject: FW: [External] Hazelwood Farms (Comprehensive Plan)

Follow Up Flag: Flag for follow up
Flag Status: Flagged

From: Scott Maye <scottmaye@hotmail.com>
Sent: Tuesday, September 28, 2021 3:32 PM
To: Planning <planning@jamescitycountyva.gov>
Subject: [External] Hazelwood Farms (Comprehensive Plan)

Please do not destroy the rural character of Toano by creating manufacturing opportunities on the Hazelwood Farm property. How many century farms are left in the county? My view is shared by many, many, many calling this area home.
Thanks, Scott Maye

Sent from my Verizon, Samsung Galaxy smartphone
Get Outlook for Android

Thomas Wysong

From: Paul Holt
Sent: Thursday, September 30, 2021 7:39 AM
To: Thomas Wysong
Subject: FW: [External] Hazelwood Farms development

On Sep 28, 2021, at 11:04 PM, Darlene Prevish <dprevish@gmail.com> wrote:

I am so distressed at the potential development of this Centurion Farm. Nothing could be farther from Mr Hazelwood's dream than what the board of supervisors has proposed. I know development is inevitable but the proposed truck terminal at this already overcrowded intersection is sure to be a deadly combination. I never understand why our elected officials think they are helping make our County more appealing by ruining the very reason most of our newer residents moved here. We have almost 100 acres of industrial land for sale at our already empty industrial park just a mile or two up the road. This location has less crowding for safer entry in and out of the park. Anderson's Corner is so much better a location for the commercial improvements as well with a wide four way intersection already in place. Could we please leave this land agricultural? I've never driven along the interstate at Jefferson Avenue, in Fredericksburg or Northern Virginia and thought, "Wow, I'd love to live here." In fact, quite the opposite. I do everything I can to avoid those overcrowded areas even if it means going out of my way to avoid the congestion. I implore you to seek help from your fellow supervisors to stop this horrible development.

Darlene Prevish

Stonehouse District

PO Box 333

Rectortown, VA 20140

Re: Application Z-19-0006 / SUP-19-0005, Hazelwood Farms, Enterprise Center

Dear Planning Commissioners:

I am writing in strong opposition to the proposed rezoning by Hazelwood Farms (The Enterprise Center) to an Economic Opportunity Zone south of Bahramsville Road in Toano. As a retired hotel development executive and architectural partner, I am generally in favor of development but this type will have a negative impact on the residential context of the area and property values.

My sibling and I own the adjacent parcel at 223 Old Stage Road which has been in our family for four generations. Our mother was born in the house on the property. Our hardworking parents used their savings to purchase it from the other heirs in 1981 after the death of our grandfather. My sibling hopes to live there full time in the future but for now it is a rental property that generates only modest income, but income on which we both depend.

I am opposed because the250-unit multifamily housing proposed next to my property and the retail frontage (convenience store with gas; fast food and retail bank) on the adjacent site will destroy the rural residential character of the area and generate an enormous increase in traffic, noise, light pollution and possibly crime that goes along with such density. My already small rental income will be hard to sustain when the property is located next door to an apartment complex despite the landscape buffering proposed. Landscaping blocks only the view but not the light and noise. Conversely, my parcel will not be attractive as a development parcel if multifamily housing is built because that developer will surely oppose a commercial use next to his project on both sides. It is the very definition of a Catch 22. Either way, my property declines in value.

It is my further understanding that the Hazelwood family seeks to entitle the property for future development but will not necessarily develop it themselves. In my prior professional life developing limited service hotels, I have seen many projects of this type where the parcel is entitled, then subdivided and sold piecemeal to others who are generally profit driven with no incentive to maintain neighborly relationships. We would all hate to see that happen here and it likely will under the proposed plan.

Lastly, Opportunity Zone designation will no doubt be highly beneficial to the Hazelwoods in marketing their sites to investers but will adversely impact neighbors. I have learned through my own analysis of OZ investing that these sites are often sold to inexperienced developers who cannot get financing elsewhere and the funds come from pools of high net worth individuals located across the country whose motive is return on investment and little else – surely not residential quality of life in James City County.

Please do not allow the Hazelwood Family, well intentioned as they may be, to destroy the property values of their neighbors and the peaceful enjoyment of this lovely Tidewater community. The area already contains enough conveniences stores, fast food restaurants, apartments and industrial space.

Sincerely,

Ronda S. McCrea, Trustee

Helen Snell Trust

Date: October 5, 2021

From: Linda Rice
2394 Forge Road, Toano, VA 23168
lindarice678@coxnet

To: The Honorable Members of the James City County Planning Commission

Re: Comments on Rezoning -19-0006 and SUP-19-0005, Hazelwood Farms – The Enterprise Center

I strongly urge the Planning Commission to deny approval of this rezoning and SUP application.

I commend the planning staff for its work on this application, and for identifying several of this project's many potential, unfavorable impacts on the rural character of and quality of life in, the upper County. I support no removal of any of the conditions which the staff has required for the SUP. I, however, am very concerned about the short period of time that has been provided to County citizens and the members of the Planning Commission to review such a consequential case consisting of about 600 pages of documents and which has such a potentially dramatic impact. Again, I strongly urge that the Planning Commission deny approval of this application for the following, among other reasons.

1. The draft 2045 Comp Plan has emphasized the importance of preserving rural lands. Although the Hazelwood property has a land use designation for Economic Opportunity ("EO"), the uses being proposed under this application are inconsistent with the recommendation of conservation parcels being preserved around the Croaker Interchange and the removal of 3000 acres of land from the PSA adjacent to Stonehouse.

2. Previous discussions about EO contemplated that this property would be used for attracting research and development in such areas as technology or health related fields. Instead, this application proposes industrial uses for the majority of the property. For example, this application suggests allowing 2.9 million sq. ft. of warehouse/industrial/office space. This is equivalent to establishing thirty Walmart stores or nine football fields. A truck terminal and textile manufacturing facility are among the other shockingly inconsistent uses being proposed.

3. According to calculations made by the applicant, it is asserted that this project should have a positive fiscal impact of about $644,000. Since the application seeks such a wide-ranging laundry list of possible uses, the calculations cannot possibly give an accurate analysis of the fiscal impact.

4. The project does not pass the Adequate Public Schools Facilities Test. And, a projection that 250 new residential units would generate just 78 additional students seems unrealistic on its face.

5. The applicant indicates that it will extend water and sewer facilities if the SUP is approved. However, the application does not address water consumption by the proposed industrial and other facilities. Water availability has been a major concern for the County since groundwater is the primary source and DEQ limits the amount of withdrawal. A secondary source is the costly purchase of water from the City of Newport News.

In sum, this is a very significant proposed project and the negative impacts of this project far outweigh any potential benefits. The current landowners will ultimately leave and the remaining residents of our County will have to live with the negative consequences, forever.

Respectfully,
Linda Rice

Thomas Wysong

From: Paul Holt
Sent: Friday, October 1, 2021 7:42 AM
To: Thomas Wysong
Subject: FW: [External] Opposition to Hazelwood Farms rezoning

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From: Josh Mathias <valegacy@yahoo.com>
Sent: Thursday, September 30, 2021 8:21 PM
To: Julia Leverenz <Julia.Leverenz@jamescitycountyva.gov>; Tim OConnor <Tim.OConnor@jamescitycountyva.gov>; John Haldeman <John.Haldeman@jamescitycountyva.gov>; Frank Polster <Frank.Polster@jamescitycountyva.gov>; Richard Krapf <Richard.Krapf@jamescitycountyva.gov>; Rob Rose <Rob.Rose@jamescitycountyva.gov>; Barbara Null <Barbara.Null@jamescitycountyva.gov>; Thomas Wysong <Thomas.Wysong@jamescitycountyva.gov>; Paul Holt <Paul.Holt@jamescitycountyva.gov>; Jim Icenhour <Jim.Icenhour@jamescitycountyva.gov>; Ruth Larson <Ruth.Larson@jamescitycountyva.gov>; John McGlennon <John.McGlennon@jamescitycountyva.gov>; Michael Hipple <michael.hipple@jamescitycountyva.gov>; Sue Sadler <Sue.Sadler@jamescitycountyva.gov>
Cc: dprevish@gmail.com
Subject: [External] Opposition to Hazelwood Farms rezoning

Dear planning commission members, board members, and staff,

Please include this correspondence as public input for the Wednesday, October 6th planning commission meeting.

In regard to the proposed rezoning of the Hazelwood Farm estate and development plan, I would like to voice my strong opposition, and echo the overwhelming opposition I have received from friends, family, co-workers and neighbors.
While everyone would agree that more business would result in more tax revenue for the county, this rezoning and proposed development is attempting to solve a problem that doesn't exist. The addition of sporadic businesses peppered throughout the county in rural areas should not be a solution for generating tax revenue.
Additionally, there has been no cry for development in upper James City County. In fact, quite the opposite is true. The majority of the residents who have decided to settle in this portion of the county specifically chose this area due to it's rural nature. It almost strikes me as odd that the planning commission would consider this proposal due to this obvious fact.
I do understand the land owners desire to want to be able to develop their land, but I would ask the commission to consider the interests of the entire county, especially residents in this area of the county. I am also aware that in 2014 the land owner(s) showed interest and submitted their initial plans for development of this land to the county, which was subsequently included as an "Economic Opportunity Area" for James City County in the 2035 Comprehensive Plan. https://wydaily.com/local-news-old/2014/12/02/stonehouse-farm-owners-envision-future-industrial-or-commercial-development/
This rezoning proposal is more than just generating tax revenue for the county. It is about protecting the rural nature of appeal of James City County which make it such a desirable place for people to live. It is also about the county planning commission and board of supervisors recognizing, understanding, and protecting the will of it's residents.

These sentiments are shown as factual as seen in the 2019 Comprehensive Plan Survey results. At the bottom of this correspondence are a few highlights from that survey regarding the results of the 2019 survey, which give a clear indication of the desires of the residents of James City County regarding development issues.

Community Development and Planning Director Paul Holt has this to say in regards to the surveys that are sent to residents of the county:

"All the citizen input is vitally important because it is the citizen [comprehensive plan].....one of the important aspects of this survey was that as a whole, it can be used to represent the county." https://wydaily.com/local-news/2019/08/14/county-takes-results-of-residents-survey-into-consideration/

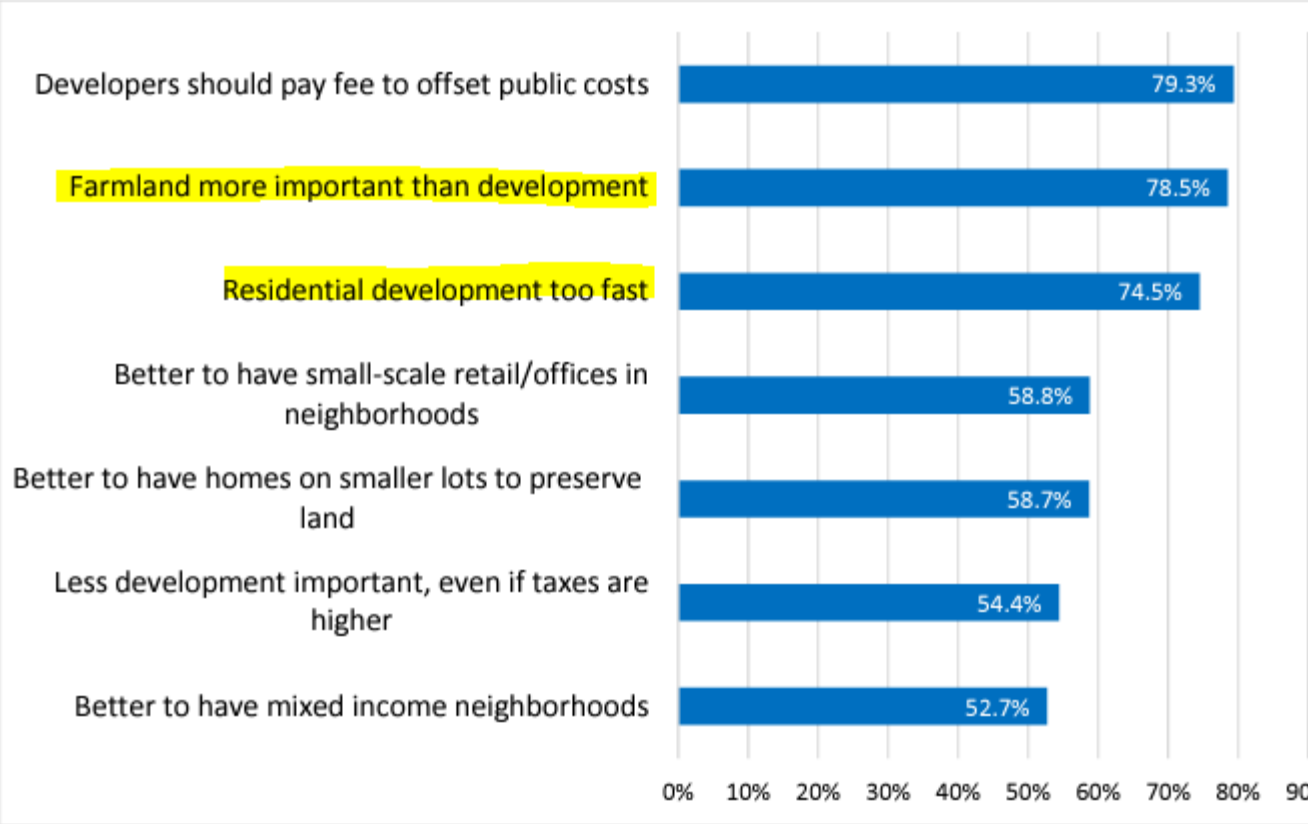
I hope the board will reconsider this rezoning proposal and look forward to further discussion and community input on this matter.

With Warmest Regards,
Josh Mathias
3428 Colony Mill Rd
Toano, VA 23168

(757)272-4142

	Percent strongly agree/somewhat agree	Percent somewhat disagree/strongly disagree
Developers who wish to build businesses or residences should always be required to pay a fee to the County to offset public costs even if it means increases in the price of their services and new housing.	79.3%	20.7%
It is more important to preserve farmland in the County than it is to have more development.	78.5%	21.5%
Residential development of the land in James City County is happening too quickly.	74.5%	25.5%
It is better to have neighborhoods in which there is a mix of housing options and small-scale retail and office development.	58.8%	41.2%
It is better to have more homes on smaller lots and set aside areas for open space in order to permanently preserve land and maintain the character of the community.	58.7%	41.3%
It is important to have less development in the County even if it means you may pay more in taxes.	54.4%	45.6%
It is better to have neighborhoods in which there is a mix of low-middle-, and high-income housing options.	52.7%	47.3%

Figure III-2: Opinion on Development Issues: Percent Strongly Agreeing/Somewhat Agreeing



The strongest level of agreement, at 79 percent, pertained to the statement that developers shou fee to the County to offset public costs. About the same number (78.5 percent) think it is more ir to preserve farmland than to have more development. Nearly three-quarters (74 percent) of r agree that residential development in James City County is happening too quickly. But whe whether it is important to have less development, even if it means paying more in taxes, the agreement drops to 54 percent (still more than half of respondents).

Thomas Wysong

From: Paul Holt
Sent: Thursday, September 30, 2021 7:39 AM
To: Thomas Wysong
Subject: FW: [External] Hazelwood Farms development

On Sep 28, 2021, at 11:04 PM, Darlene Prevish <dprevish@gmail.com> wrote:

I am so distressed at the potential development of this Centurion Farm. Nothing could be farther from Mr Hazelwood's dream than what the board of supervisors has proposed. I know development is inevitable but the proposed truck terminal at this already overcrowded intersection is sure to be a deadly combination. I never understand why our elected officials think they are helping make our County more appealing by ruining the very reason most of our newer residents moved here. We have almost 100 acres of industrial land for sale at our already empty industrial park just a mile or two up the road. This location has less crowding for safer entry in and out of the park. Anderson's Corner is so much better a location for the commercial improvements as well with a wide four way intersection already in place. Could we please leave this land agricultural? I've never driven along the interstate at Jefferson Avenue, in Fredericksburg or Northern Virginia and thought, "Wow, I'd love to live here." In fact, quite the opposite. I do everything I can to avoid those overcrowded areas even if it means going out of my way to avoid the congestion. I implore you to seek help from your fellow supervisors to stop this horrible development.

Darlene Prevish

Stonehouse District

PO Box 333

Rectortown, VA 20140

Re: Application Z-19-0006 / SUP-19-0005, Hazelwood Farms, Enterprise Center

Dear Planning Commissioners:

I am writing in strong opposition to the proposed rezoning by Hazelwood Farms (The Enterprise Center) to an Economic Opportunity Zone south of Bahramsville Road in Toano. As a retired hotel development executive and architectural partner, I am generally in favor of development but this type will have a negative impact on the residential context of the area and property values.

My sibling and I own the adjacent parcel at 223 Old Stage Road which has been in our family for four generations. Our mother was born in the house on the property. Our hardworking parents used their savings to purchase it from the other heirs in 1981 after the death of our grandfather. My sibling hopes to live there full time in the future but for now it is a rental property that generates only modest income, but income on which we both depend.

I am opposed because the250-unit multifamily housing proposed next to my property and the retail frontage (convenience store with gas; fast food and retail bank) on the adjacent site will destroy the rural residential character of the area and generate an enormous increase in traffic, noise, light pollution and possibly crime that goes along with such density. My already small rental income will be hard to sustain when the property is located next door to an apartment complex despite the landscape buffering proposed. Landscaping blocks only the view but not the light and noise. Conversely, my parcel will not be attractive as a development parcel if multifamily housing is built because that developer will surely oppose a commercial use next to his project on both sides. It is the very definition of a Catch 22. Either way, my property declines in value.

It is my further understanding that the Hazelwood family seeks to entitle the property for future development but will not necessarily develop it themselves. In my prior professional life developing limited service hotels, I have seen many projects of this type where the parcel is entitled, then subdivided and sold piecemeal to others who are generally profit driven with no incentive to maintain neighborly relationships. We would all hate to see that happen here and it likely will under the proposed plan.

Lastly, Opportunity Zone designation will no doubt be highly beneficial to the Hazelwoods in marketing their sites to investers but will adversely impact neighbors. I have learned through my own analysis of OZ investing that these sites are often sold to inexperienced developers who cannot get financing elsewhere and the funds come from pools of high net worth individuals located across the country whose motive is return on investment and little else – surely not residential quality of life in James City County.

Please do not allow the Hazelwood Family, well intentioned as they may be, to destroy the property values of their neighbors and the peaceful enjoyment of this lovely Tidewater community. The area already contains enough conveniences stores, fast food restaurants, apartments and industrial space.

Sincerely,

Ronda S. McCrea, Trustee

Helen Snell Trust

Date: October 5, 2021

From: Linda Rice
2394 Forge Road, Toano, VA 23168
lindarice678@coxnet

To: The Honorable Members of the James City County Planning Commission

Re: Comments on Rezoning -19-0006 and SUP-19-0005, Hazelwood Farms – The Enterprise Center

I strongly urge the Planning Commission to deny approval of this rezoning and SUP application.

I commend the planning staff for its work on this application, and for identifying several of this project's many potential, unfavorable impacts on the rural character of and quality of life in, the upper County. I support no removal of any of the conditions which the staff has required for the SUP. I, however, am very concerned about the short period of time that has been provided to County citizens and the members of the Planning Commission to review such a consequential case consisting of about 600 pages of documents and which has such a potentially dramatic impact. Again, I strongly urge that the Planning Commission deny approval of this application for the following, among other reasons.

1. The draft 2045 Comp Plan has emphasized the importance of preserving rural lands. Although the Hazelwood property has a land use designation for Economic Opportunity ("EO"), the uses being proposed under this application are inconsistent with the recommendation of conservation parcels being preserved around the Croaker Interchange and the removal of 3000 acres of land from the PSA adjacent to Stonehouse.

2. Previous discussions about EO contemplated that this property would be used for attracting research and development in such areas as technology or health related fields. Instead, this application proposes industrial uses for the majority of the property. For example, this application suggests allowing 2.9 million sq. ft. of warehouse/industrial/office space. This is equivalent to establishing thirty Walmart stores or nine football fields. A truck terminal and textile manufacturing facility are among the other shockingly inconsistent uses being proposed.

3. According to calculations made by the applicant, it is asserted that this project should have a positive fiscal impact of about $644,000. Since the application seeks such a wide-ranging laundry list of possible uses, the calculations cannot possibly give an accurate analysis of the fiscal impact.

4. The project does not pass the Adequate Public Schools Facilities Test. And, a projection that 250 new residential units would generate just 78 additional students seems unrealistic on its face.

5. The applicant indicates that it will extend water and sewer facilities if the SUP is approved. However, the application does not address water consumption by the proposed industrial and other facilities. Water availability has been a major concern for the County since groundwater is the primary source and DEQ limits the amount of withdrawal. A secondary source is the costly purchase of water from the City of Newport News.

In sum, this is a very significant proposed project and the negative impacts of this project far outweigh any potential benefits. The current landowners will ultimately leave and the remaining residents of our County will have to live with the negative consequences, forever.

Respectfully,
Linda Rice

Thomas Wysong

From: Paul Holt
Sent: Friday, October 1, 2021 7:42 AM
To: Thomas Wysong
Subject: FW: [External] Opposition to Hazelwood Farms rezoning

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From: Josh Mathias <valegacy@yahoo.com>
Sent: Thursday, September 30, 2021 8:21 PM
To: Julia Leverenz <Julia.Leverenz@jamescitycountyva.gov>; Tim OConnor <Tim.OConnor@jamescitycountyva.gov>; John Haldeman <John.Haldeman@jamescitycountyva.gov>; Frank Polster <Frank.Polster@jamescitycountyva.gov>; Richard Krapf <Richard.Krapf@jamescitycountyva.gov>; Rob Rose <Rob.Rose@jamescitycountyva.gov>; Barbara Null <Barbara.Null@jamescitycountyva.gov>; Thomas Wysong <Thomas.Wysong@jamescitycountyva.gov>; Paul Holt <Paul.Holt@jamescitycountyva.gov>; Jim Icenhour <Jim.Icenhour@jamescitycountyva.gov>; Ruth Larson <Ruth.Larson@jamescitycountyva.gov>; John McGlennon <John.McGlennon@jamescitycountyva.gov>; Michael Hipple <michael.hipple@jamescitycountyva.gov>; Sue Sadler <Sue.Sadler@jamescitycountyva.gov>
Cc: dprevish@gmail.com
Subject: [External] Opposition to Hazelwood Farms rezoning

Dear planning commission members, board members, and staff,

Please include this correspondence as public input for the Wednesday, October 6th planning commission meeting.

In regard to the proposed rezoning of the Hazelwood Farm estate and development plan, I would like to voice my strong opposition, and echo the overwhelming opposition I have received from friends, family, co-workers and neighbors.
While everyone would agree that more business would result in more tax revenue for the county, this rezoning and proposed development is attempting to solve a problem that doesn't exist. The addition of sporadic businesses peppered throughout the county in rural areas should not be a solution for generating tax revenue.
Additionally, there has been no cry for development in upper James City County. In fact, quite the opposite is true. The majority of the residents who have decided to settle in this portion of the county specifically chose this area due to it's rural nature. It almost strikes me as odd that the planning commission would consider this proposal due to this obvious fact.
I do understand the land owners desire to want to be able to develop their land, but I would ask the commission to consider the interests of the entire county, especially residents in this area of the county. I am also aware that in 2014 the land owner(s) showed interest and submitted their initial plans for development of this land to the county, which was subsequently included as an "Economic Opportunity Area" for James City County in the 2035 Comprehensive Plan. https://wydaily.com/local-news-old/2014/12/02/stonehouse-farm-owners-envision-future-industrial-or-commercial-development/
This rezoning proposal is more than just generating tax revenue for the county. It is about protecting the rural nature of appeal of James City County which make it such a desirable place for people to live. It is also about the county planning commission and board of supervisors recognizing, understanding, and protecting the will of it's residents.

These sentiments are shown as factual as seen in the 2019 Comprehensive Plan Survey results. At the bottom of this correspondence are a few highlights from that survey regarding the results of the 2019 survey, which give a clear indication of the desires of the residents of James City County regarding development issues.

Community Development and Planning Director Paul Holt has this to say in regards to the surveys that are sent to residents of the county:

"All the citizen input is vitally important because it is the citizen [comprehensive plan].....one of the important aspects of this survey was that as a whole, it can be used to represent the county." https://wydaily.com/local-news/2019/08/14/county-takes-results-of-residents-survey-into-consideration/

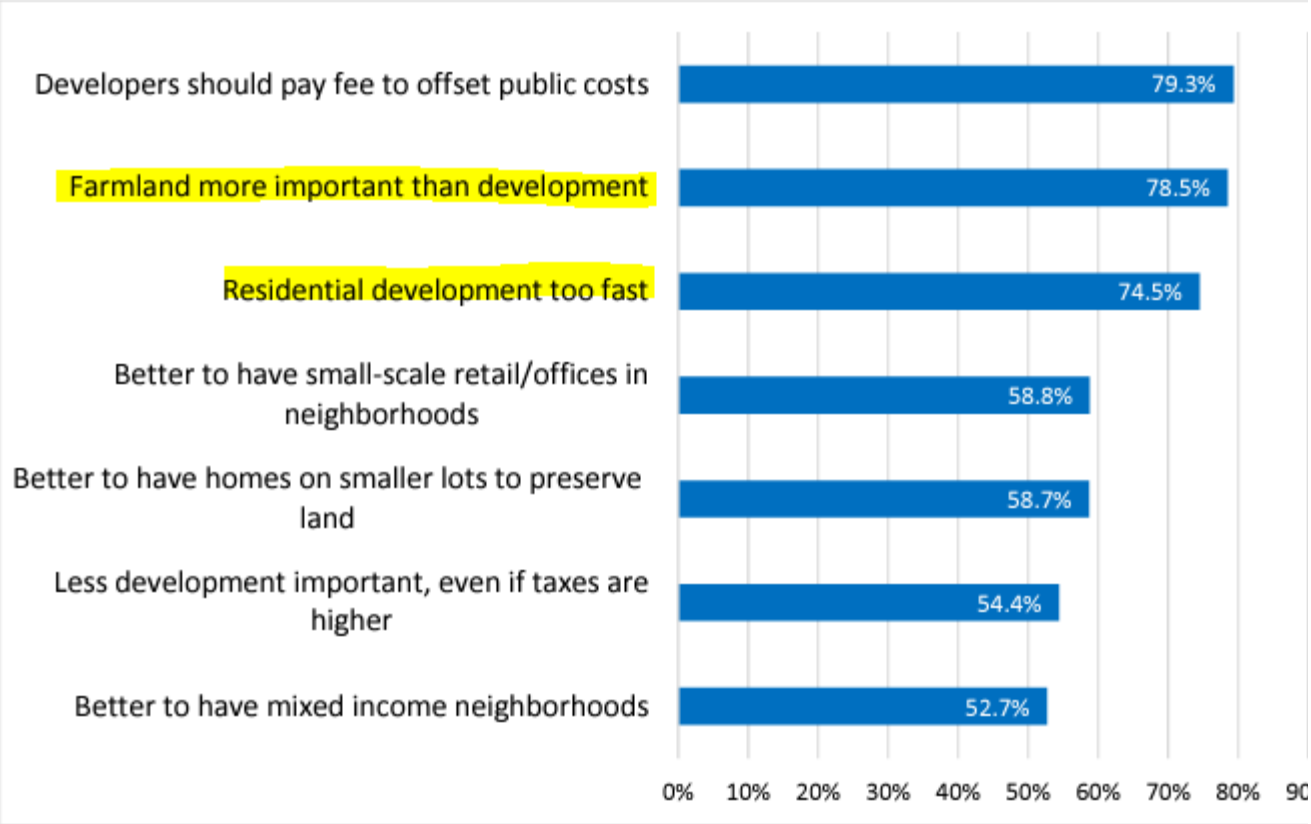
I hope the board will reconsider this rezoning proposal and look forward to further discussion and community input on this matter.

With Warmest Regards,
Josh Mathias
3428 Colony Mill Rd
Toano, VA 23168

(757)272-4142

	Percent strongly agree/somewhat agree	Percent somewhat disagree/strongly disagree
Developers who wish to build businesses or residences should always be required to pay a fee to the County to offset public costs even if it means increases in the price of their services and new housing.	79.3%	20.7%
It is more important to preserve farmland in the County than it is to have more development.	78.5%	21.5%
Residential development of the land in James City County is happening too quickly.	74.5%	25.5%
It is better to have neighborhoods in which there is a mix of housing options and small-scale retail and office development.	58.8%	41.2%
It is better to have more homes on smaller lots and set aside areas for open space in order to permanently preserve land and maintain the character of the community.	58.7%	41.3%
It is important to have less development in the County even if it means you may pay more in taxes.	54.4%	45.6%
It is better to have neighborhoods in which there is a mix of low-middle-, and high-income housing options.	52.7%	47.3%

Figure III-2: Opinion on Development Issues: Percent Strongly Agreeing/Somewhat Agreeing



The strongest level of agreement, at 79 percent, pertained to the statement that developers shou fee to the County to offset public costs. About the same number (78.5 percent) think it is more ir to preserve farmland than to have more development. Nearly three-quarters (74 percent) of r agree that residential development in James City County is happening too quickly. But whe whether it is important to have less development, even if it means paying more in taxes, the agreement drops to 54 percent (still more than half of respondents).

Paxton Condon

From: Avery Hicks <averyhicks@verizon.net>
Sent: Thursday, December 9, 2021 10:25 AM
To: Planning
Subject: [External]Hazelwood Farms Development

Dear Planning Commission Members,

I would like to register my opposition to the proposed development of the Hazelwood Property, specifically the aspects impacting Rte 30 along Barnes Road. In the planning documents available, I do not see any attempt to mitigate traffic impacts at the Rte 30 and Barnes Rd intersection. I see that traffic studies have been done and apparently they do not show a negative impact of the development on traffic in that location. I cannot say I really understand the traffic study documents; all I can tell you is what I experience each day on my commute to work.

I am a New Kent County Resident, and the closing of Six Mount Zion Road cut off a useful and even critical route into James City County (taking Emergency Services longer to get to our area). Many citizens tried to have this road reopened but their pleas fell on deaf ears.

The road's closing also increased the traffic on Rte 30. As I'm sure you are aware, there have been so many accidents at or near the Barnes Rd/Rte 30 intersection that the speed limit was lowered a paltry 5 mph. I know what I see each day, and I can tell you that there is simply no way that the proposed development will not impact the traffic there in a negative way. MANY traffic accidents involving fatalities have occurred near the I-64 Exit 227 interchange, closing the Interstate for long periods of time and rerouting traffic onto Rte 30 (because of the closing of Six Mount Zion Road, there is no alternate route to get around such congestion).

This is the situation as it exists now! Imagine the added impact of thousands more vehicles concentrated in that area as they enter and exit the apartment complexes and businesses.

Please keep in mind as you move forward that many MANY New Kent residents work in James City County, and the decisions you make impact valuable workers in your county and not just residents.

I believe this project is truly a disaster for traffic in this area. I will also add what others have certainly addressed -- the basic fact that the rural atmosphere of this area will be completely ruined if this project moves forward.

Thank you for your time,

Avery Hicks
20419 Tabernacle Rd
Barhamsville, VA 23011
757-566-8229
757-755-1884

Thomas Wysong

From: Debbie & Doug Danford <ddanford@cox.net>
Sent: Sunday, December 26, 2021 1:14 PM
To: Thomas Wysong
Subject: [External]Subject: Z-19-0006 / SUP-19-0005 Hazelwood Farms – The Enterprise Center
Ref: Distribute to Planning Commissioners and application file

Please know that we fully support Hazelwood Farms - The Enterprise Center applications.

This is the ideal location for an Economic Opportunity development as it borders I-64 and has immediate on/off access to the Interstate utilizing Exit 227.

The benefits, for the citizens and the County in terms of a steady tax revenue stream and job creation will be welcomed.

Sincerely,

Douglas W. Danford
Deborah J. Danford
3629 Bridgewater Drive
Williamsburg, VA 23188

Sent from Mail for Windows

Extra Mile Landscapes
Class A Contractor No. 2705094282
Complete Landscape Construction & Grounds Maintenance
8864 Richmond Road W. Suite #102, Toano, Virginia 23168
Phone: 757-741-2015 Fax: 757-741-2366
office@emlandscapes.net

December 21, 2021

To Whom It May Concern;

Extra Mile Landscapes, Inc. is in favor and support of Hazelwood Farms Enterprise Center. Please do not hesitate to call if you have any questions or comments.

Thank you,

Jesse McHose
President
(757) 592-6347

Robert Wiltshire
Secretary//Treasurer
(757) 592-6345

Date: December 29, 2021

From: Linda Rice, President of Friends of Forge Road and Toano
2394 Forge Road, Toano, VA 23168
lindarice678@cox.net

To: The Honorable Members of the James City County Planning Commission
Cc: Board of Supervisors

Re: Opposition of Friends of Forge Road and Toano to:
Z-19-0006 / SUP-19-0005. Hazelwood Farms – The Enterprise Center

Friends of Forge Road and Toano (F.O.R.T.) is a non-profit group founded in 2004 by concerned citizens in Upper James City County. We work with other neighborhood associations and various other groups to promote the preservation of rural areas, enhance awareness of our region's historic significance and support agri-tourism. Some of our members have served on the James City County Planning Commission, the Chesapeake Bay Board, the Wetlands Board, the James City County Historical Commission and the Purchase of Development Rights Committee.

We are writing to register our strong opposition to Z-19-0006 / SUP-19-0005 and respectfully request that you vote **not** to recommend approval of this application.

1. <u>The Magnitude of this Proposed Project Is Staggering</u>

The Enterprise Center development project is one of the largest (if not the largest) ever proposed in the history of James City County. The adverse consequences of this project will be far- reaching and irreversible. In short, this is a **big** decision and a **forever** decision.

Of the 328 acres at issue, this application seeks to rezone from General Agriculture some 165.94 acres, or **over 50%,** of the land involved. This does not include the 79 acres already approved for rezoning in the same owner's Village Center project. Development of this land would result in the permanent loss of extensive farmland and forest.

The 328 acres are currently zoned as follows:

- B-1 General Business – 3.83 acres (301 Old Stage Road, 2.3 acres and 9211 Old Stage Road, 1.53 acres);

- A-1 General Agricultural/B-1 General Business – 193.75 acres (275 Old Stage Road) of which approximately 35.52 acres are A-1 and approximately 158.23 acres are B-1.

- A-1 General Agricultural – 130.42 acres. (This is the portion of 9400 Barnes Road which is south of Interstate 64. The entire 9400 Barnes Road parcel, some of which is in the Village Center project, is 183.43 acres.)

2. <u>The Proposed Uses Are Overbroad and Destructive of the Area's Character</u>

The application seeks to permit up to approximately 3,220,000 square feet of warehouse, industrial and office use (this is actually **an increase** of 300,000 square feet from the request made to the Planning Commission on October 6, 2021) and 75,000 square feet of commercial use. This assault on the area's rural character and quality of life is exacerbated by the SUP which goes far beyond the permitted uses of an Economic Opportunity designation ("EO") and seeks an array of offending uses, including the manufacture and processing of textiles and textile products; heavy equipment sales and service; machinery sales and service; and commercial buildings exceeding 10,000 square feet of floor area. This application is a good example of throwing everything against the wall to see what sticks.

3. <u>This Proposed Project is Completely Contrary to the Expressed Desires of the County's Citizens</u>

As you are well aware, in connection with developing the 2045 Comprehensive Plan, the County, to its credit, went to great lengths during the Engage 2045 process to obtain input from the County's citizens as to their land use priorities. The County's citizens have every right to expect that their input will be taken seriously. The Comprehensive plan is replete with references to the citizens' overwhelming desire to retain the rural character of our land.

For example, in the Introduction under the heading "A Community that Values its Rural Landscape," the Comprehensive Plan states:

> *…Both in this planning process and during outreach in prior comprehensive plans, the citizens of James City County have repeatedly emphasized the great value they place on their rural landscapes, including the high premium citizens put on the quality of life that is derived from the County's pristine natural resources, protected open spaces, scenic rural vistas and historic and traditional small town and village community character. Many are concerned that the pace, pattern and character of new growth and development may harm this treasured character of the County and many expressed a strong desire both to limit the pace and amount of new development and direct it away from rural areas that they value so highly.* (Intro-4)

And, further recognizing the undeniable desire of the citizens, the Comprehensive Plan states as its Community Character Goal:

> *The County will be a good steward of the land by preserving and enhancing the scenic, cultural, rural, farm, forestal, natural, architectural, and historic qualities that are essential to the County's distinctive character, economic vitality, and overall health and quality of its residents.* (Intro-7)

How can it be reasonably argued that this far-reaching, intrusive rezoning/SUP application is consistent with good stewardship of the land, and the expressed desires of the County's citizens?

4. <u>The Proposed Project's Suggested Placement as an Economic Opportunity Area Is Not a Rezoning Mandate</u>

In or about 2008--undoubtedly in long term preparation for the current day--this same owner applied and lobbied to have this property designated as an Economic Opportunity area on the Comprehensive Plan Land Use Map (i.e. the Economic Opportunity-Barhamsville Interchange Area).

Now, in support of its current rezoning application, this owner seeks to rely on this earlier EO designation as determinative of the current application. This reliance is misplaced.

As stated under "The Purpose of the Comprehensive Plan":

> *A comprehensive plan is a policy guide for local governments that sets a long-range vision and a strategy for implementing the vision.* (Intro-2)

But, a guide or a vision is NOT a mandate.

Similarly, the fact that this land happens to be in the PSA (actually it is just within the border of the PSA) does NOT mean that this land must be developed. Just because land can be developed, does not mean it must or should be developed. Indeed, the Comprehensive Plan recognizes the undeniable fact that:

> *Rural areas include lands inside and outside of the PSA, both of which continue to see development pressure.* (Intro-4)

Given the magnitude of this 328-acre proposed project, it is no solace at all to the citizens of this County that this acreage happens to be within the PSA. The extensive, permanent damage to the character of this area will occur whether the acres are in the PSA or not.

5. <u>Adverse Impacts of the Applicant's Proposed Plan on Traffic, Water, Noise and Surrounding Property Values</u>

Others will undoubtedly be communicating on these serious impacts. That said, some observations include:

- **Traffic impacts—**This is a complex, multifaceted problem which requires careful, current study. We do not have that. The applicant's traffic analysis is dated January 2019. An updated study would likely show, among other things, upward adjustments to the Level of Service. Even without the addition of the massive Enterprise Center project, there is now a significant and growing traffic problem on Route 30 and environs. The proponents of this project would have us believe that the way to solve this current traffic problem is to **add** more traffic and thereafter attempt to mitigate the increased traffic problem they created. This makes no logical sense. If we already have a traffic problem, let us address that problem independently (with signalization and the like) and not add to it.
- **Water use—**It is inescapable that a project of this size will impose serious demands on our finite water supply. The extent of that demand is a huge and critical unknown. Because of the far-reaching, undefined uses proposed and other variables, according to JCSA no detailed modeling can be performed at this time to determine the magnitude of this project's water use. Anecdotally, we do know that a suggested use such as textile manufacturing and processing is heavily dependent on water for dyeing, washing/rinsing, scoring and bleaching. The impact on private residential wells which use ground water is also a huge unknown. The VA Department of Health needs to provide a list of these wells which might be impacted by this project. And, even with that, we have been advised that the well mapping program was not instituted until the mid-1980's, and that, accordingly, there are thousands of wells which are not accounted for.
- **Noise impacts—**JCC has a noise ordinance. This ordinance is, however, inadequate to mitigate noise impacts from the proposed manufacturing or industrial uses. The ordinance only requires restricted operations at certain hours. The description of sound may include any characteristics of sound, including duration, intensity, and frequency. AES has advised that it has no plans for any sound barriers between the manufacturing/industrial sections of this proposed project and private homes, and that it will rely on the topography to mitigate noise. Since we do not know the types of uses, it is difficult to determine if that is at all sufficient. The distance between residence homes and areas of proposed manufacturing has to be more carefully considered.
- **Surrounding Property Values—**A significant concern is that residential property in the area of the proposed development will see a reduction in value, due to traffic, noise, congestion, and elimination of a

rural view shed. Thus, the value of the land in the proposed development will rise, at the expense of the value of the private homes surrounding it.

6. <u>The Argument That We Must Accept the Applicant's Plan as Proposed Lest We Face Wholly Uncontrolled Development Is Wrong</u>

Contrary to what some would have us believe, approval or non-approval of the applicant's proposed plan is not a binary choice between order and chaos.

If approval of the applicant's plan is denied (as we sincerely hope it will be), the land at issue would remain zoned as is, with half zoned as A-1 and half zoned as B-1. Chapter 24 of the County's Zoning Ordinance makes it clear that there are a variety of unoffending permitted uses for B-1 zoned property. See, Section 24-389 et. seq. And, very importantly, there are all manner of codified requirements and restrictions on development. See, Section 24-392 et. seq. These include, for example, requirements and restrictions regarding setbacks, yards, height of structures, building coverage limits, sign regulations and parking requirements, **site plan review**, pedestrian accommodations, and landscaping.

As stated above, we respectfully request that the Planning Commission **not** recommend approval of this application.

Linda Rice
President of Friends of Forge Road and Toano

Thomas Wysong

From: Mark Hockaday <mark@henryequipment.com>
Sent: Thursday, December 23, 2021 11:02 AM
To: Thomas Wysong
Subject: [External]Z-19-0006 / SUP-19-0005 Hazelwood Farms – The Enterprise Center

December 23, 2021

Mr. Thomas Wysong
thomas.wysong@jamescitycountyva.gov
Senior Planner
James City County

Ref: Distribute to Planning Commissioners and application file

Subject:

Please know that I fully support Hazelwood Farms - The Enterprise Center applications.

This is the ideal location for an Economic Opportunity development as it borders I-64 and has immediate on/off access to the Interstate utilizing Exit 227.

The benefits, for the citizens and the County in terms of a steady tax revenue stream and job creation will be welcomed.

Sincerely,

Mark Hockaday
2513 Manion Dr.
Williamsburg, VA 23185

Thank you,
Mark E. Hockaday
Certified Senior Appraiser

Henry Equipment Sales Inc.
Direct: 757-903-0440
Office: 757-565-7222
Website: **www.henryequipment.com** **or** **www.henryequipmentappraisals.com**
USPAP - Uniform Standards of Professional Appraisal Practice

MM & W Properties LLC

8864 W. Richmond Road
Suite #102
Toano, VA 23168

December 21, 2021

To Whom It May Concern;

MM&W Properties, LLC. is in favor and support of Hazelwood Farms Enterprise Center. Please do not hesitate to call if you have any questions or comments.

Thank you,

Robert Wiltshire
Managing Partner
(757) 592-6345

Jesse McHose
Partner
(757) 592-6347

Thomas Wysong

From: Virginia <dogwood2@cox.net>
Sent: Monday, December 27, 2021 11:25 AM
To: Thomas Wysong
Subject: [External]Hazelwood Farms- the Enterprise Center

I am in support of Z-19-0006 and SUP-19-0005. Hazelwood Farms – the Enterprise Center"

Sent from Mail for Windows

Thomas Wysong

From: Les Solomon <les.solomon@gmail.com>
Sent: Sunday, January 2, 2022 9:22 PM
To: Thomas Wysong
Subject: [External]The

I have carefully read the letter that Linda Rice, on behalf of the FORT Board, sent to you urging disapproval of the planned development. Her thoughtful and well researched appeal has my full support and I fully support her recommendation.

I live near Five Forks and thus, seldom travel over there. However, it is such a unique area in James City County that a development of this size and consequence would be a huge loss to the entire county. I am particularly concerned about the environmental impact of such a development.

Les Solomon
\3219 Pristine View, Williamsburg, VA 23188
Cell phone:
Les (he, him) 757 202-1909
Jo (she, her) 757 470-9510 josolomon65@gmail.com

Thomas Wysong

From: rick timberlake <twobndsand@yahoo.com>
Sent: Monday, January 3, 2022 1:23 PM
To: Thomas Wysong
Subject: [External]Speaking in favor of Hazelwood Farms' project

Good Morning,

I am writing IN FAVOR of the proposed improvements under consideration for the Hazelwood property in upper James City County. This area deserves well-planned, productive improvements that will benefit the local area residents and help relieve the tax burden on homeowners. As a former member of the JCBVD, i am aware of the great protection standard afforded by Station One, and feel that this development would be a welcome addition to the area.

Rick Timberlake
4147 Wiffet Way
Williamsburg, VA. 23188

December 31, 2021

Larry Hazelwood
Hazelwood Farms, LLC
P.O. Box 27
Toano, VA 23168

Planning Commission Members James City County
Mr. Richard Krapf Mr. Tim O'Connor Mr. Bob Rose Mr. Frank Polster
Ms. Julia Leverenz Ms. Barbara Null Mr. Jack Halderman
Mr. Thomas Wysong, Senior Planner II – James City County, VA

Ref: Z-19-0006 / SUP-0005
Hazelwood Farms – The Enterprise Center

Dear Members and Staff:

I am writing you on behalf of my brother, Robert M. Hazelwood, III and my sister, Debbie H. Drudge, and myself. We are the fourth generation of the Hazelwood Family to own the property and submitting the above referenced applications for your consideration. While we grew up on the property we live in nearby localities. We still maintain our parents residence, using it primarily as an office now headquartering our farm operations.

While our great grandfather, George Hazelwood settled on the farm in 1886, his son, Robert M. Hazelwood, our grandfather, was born there in 1895. His son, also born on the farm in 1925, our father, Robert M. Hazelwood, Jr lived his entire life on the farm too. We are the last generation to live on the farm, and still today maintain an active role there managing various row crops and timber assets.

I want to convey to you the deep emotional attachment we have to the farm and to James City County. We received considerable guidance from our parents in the final disposition of the farm. They knew that maintaining the acreage as a singular family enterprise would not be a viable option in the future. The Hazelwood Family's goal is simply to position the property for a higher and better use sometime in the future. While we are not land developers, we hope to maintain a measure of control as to how the property may be utilized going forward. It is important to the Hazelwood Family to influence a result that our family can take pride, knowing it will also benefit James City County and its residents.

Our Master Plan ensures our vision will be achieved in a compliant, logical, and orderly fashion. We respectfully ask that the Members of the Planning Commission to approve our applications for zoning and SUP designations.

Very Respectfully
Larry Hazelwood

Date: January 4, 2022

From: Sudie Watkins, President of League of Women Voters –Williasmburg Area (LWV-WA)
3703 South Square
Williamsburg, VA 23188
sudiewat@gmail.com

To: The Honorable Members of the James City County Planning Commission
Cc: Board of Supervisors

Re: Opposition of LWV-WA to:
Z-19-0006 / SUP-19-0005. Hazelwood Farms – The Enterprise Center

The League of Women Voters is a nonpartisan political organization encouraging informed and active participation in government, influencing public policy through education and advocacy. We never support or oppose any political party or candidate. LWV-WA has served the area of the City of Williamsburg, James City County, and upper York County for over 50 years. We currently have a membership of 319 individuals.

We are urging you to **oppose** Z-19-0006/SUP-19-0005. We list the following reasons for our recommendation to not approve this project.

1**. League Position** - Management of land as a **finite** resource not as a commodity, since land ownership, whether public or private, carries responsibility for stewardship

Hazelwood Farms Proposal – this case is likely to be one of the largest developments ever proposed for James City County. If this is approved, over 3.2 M square feet of warehouse, industrial and office use would occur. Additionally, approval of the SUP would allow uses such as the manufacture and processing of textiles, heavy equipment sales and service and machinery sales and service.

2. **League Position** - Land-use planning that reflects conservation and wise management of resources

Hazelwood Farms Proposal – this proposal ignores citizen input received during three public engagement processes for the 2045 Comprehensive Plan. According to Tammie Rosario, Assistant Director for Community Development, the report of the findings presented to the BOS found "consistent support to prioritize the protection of natural lands and open spaces in the county." (Source: VA Gazette, March 30, 2021)

3. **League Position -** Identification of areas of critical concern such as: unique scenic or historic areas where development could result in irreversible damage

Hazelwood Farms Proposal – this proposal will likely have adverse impacts on traffic, water, noise and surrounding property values. There continues to be an increase on traffic on Route 30, one of the roads to be greatly impacted by this proposal. Recently, the JCC Development Review Committee approved 600 homes for the existing Stonehouse Development (Peninsula Chronicle, December 17, 2021). Along with the proposed Enterprise Center, signalization along this road is inevitable and will turn this two land road into Monticello Avenue or at worst Denbigh Boulevard. Further, likely truck back-ups at I-64 Toano interchange will cause trucks and other traffic to use the Croaker exit to access the Enterprise Center thru the Village of Toano. The unique rural character and landscape of this area will be forever changed.

Since the uses in this proposal are speculative, it is difficult to determine the extent of the adverse impacts. Likely, these impacts will diminish the residential property values. Several residential neighborhoods such as Meadow Lakes Estates will be most directly affected by noise from the proposed uses (the developer is proposing no sound barriers between the residences and the industrial sites) and possible effects on their private residential wells.

Again, we request that the Planning Commission **deny** approval of this project.

Respectfully,

Sudie Watkins

Sudie Watkins
President of League of Women Voters –Williasmburg Area (LWV-WA)

Thomas Wysong

From: Ronda McCrea <ronda.mccrea@gmail.com>
Sent: Monday, January 3, 2022 9:58 AM
To: Thomas Wysong
Subject: [External]Re: Planning Commission Livestream

Dear Thomas,

Thank you again for taking time to speak with me last week. I am pleased about the proposed changes (deleting the residential and truck terminal components) but after giving it careful consideration, remain opposed to the development of the Enterprise Center parcel. As the landowner directly adjacent to the south, I continue to be extremely concerned about the additional traffic, noise and light pollution that will emanate from the site. It will no doubt interfere with the peaceful enjoyment of my property and rural character of the area, adversely impacting its rental value and future resale potential.

As a member of development teams similar to this one during my professional career in architecture and hotels, I know that these parcels are generally entitled and master planned by owners such as the Hazelwoods, then sold piecemeal in smaller, subdivided parcels over time to individual developers who specialize in specific asset classes of real estate (hotels, convenience stores, offices, industrial uses, retail, etc.). This appears to be the intent here as the Hazelwoods have said they do not plan to develop the project(s) themselves. In my experience, dealing with multiple smaller developers who often have no ties to the community makes the project much more difficult for local officials to control pursuant to compliance with local zoning and land use and invites a variety of oversight dilemmas which are costly and difficult for the county. Profit tends to be the primary goal in such developments, not the preservation of the area, being a good neighbor or adhering to local regulations in my experience.

Thank you in advance for sharing my comments here with the planning commission. Though I understand the need for tax revenue and jobs, the rights of individual property owners and the residential tax base should be given priority. Families like ours have owned their properties for generations and should not suffer as a result of one family's vision for their property.

Thank you again, Thomas.

Sincerely,
Ronda S. McCrea, Trustee
Helen Snell Trust
223 Old Stage Road

On Wed, Dec 29, 2021 at 3:25 PM Thomas Wysong <Thomas.Wysong@jamescitycountyva.gov> wrote:

> Good afternoon Ronda,

It was a pleasure speaking with you this afternoon. The County's livestream for Planning Commission meetings can be found at the link below:

https://www.youtube.com/c/JamesCityCounty/videos

Thanks very much,

Thomas

Thomas Wysong

Senior Planner II, AICP

101-A Mounts Bay Road
Williamsburg, VA 23185

P: 757-253-6771

Thomas.Wysong@jamescitycountyva.gov

December 30, 2021

Planning Commission Members James City County
Mr. Richard Krapf
Mr. Bob Rose
Ms. Julia Leverenz
Mr. Jack Halderman
Mr. Tim O'Connor
Mr. Frank Polster
Ms. Barbara Null
Mr. Thomas Wysong, Senior Planner II - James City County

Ref: Z-19-0006 / SUP-19-0005 Hazelwood Farms – The Enterprise Center

Dear Members and Staff:

Regarding the above referenced rezoning and Special Use Permit I want to reiterate my full support and ask for an affirmative vote from the Planning Commission. Previously in September, I wrote you in support of these applications. Since that time, I attended a project overview at the James City County Library and have read the staff report for your January 5, 2022 meeting. The most recent revisions by the Hazelwood family to their application have further strengthened my support for the applications. I support the applications and urge support from each member of the Planning Commission.

We are fortunate that the Hazelwood family has been a good steward of the property. They have maintained the property in a large tract. They have tended the land to be sure that it is available for a more desirable use. Strategically located at the 227 interchange on I-64 the referenced development has few traffic impacts. The property can be a tax generating asset to the community. It can help maintain the quality of life for our community by contributing to our tax revenues and provide employment opportunities for our citizens.

Important quality points that I urge you to consider in your approval are:

- The project is conveniently located to Richmond airport and the Newport News Williamsburg airport
- The entire project is within the Primary Service Area
- Water and sewer are available for the project

- Immediate access to exit 227 on interstate 64 allows the change in Land Use to add tax dollars to our community without additional traffic burdens.
- The property is already assembled in two large contiguous tracts with common ownership. These parcels have been assembled and maintained by the Hazelwood family. Now with willing family members, who share a quality vision James City County can move forward and make a Land Use change that can benefit our citizens.
- The improvements to Old Stage Road are substantial and will improve my commute from my home on Merry Oaks Lane, to the 227, Toano exit, from I-64.
- The project is fiscally positive generating considerably more tax revenue than the current uses. This revenue can be used by our Board of Supervisors to improve schools, fire and safety, recreation, solid waste and other critical services. It will give our Board of Supervisors the opportunity to lower the tax burden throughout the county.

In recent years there has been a cry from citizens of "No Growth" or "No Rezoning". Those cries regarding this proposal would be out of place and incorrect. The proposed rezoning adds jobs, tax base, and additional citizens in a mix that is healthy for a vibrant community. Saying "No" to quality Land Use changes is a mistake.

In addition, you must look at what might happen if you said "No" to this opportunity. The land holding could become fragmented. Undesirable uses could be developed that would have less controls by the county and produce less tax revenue for our citizens.

This is a quality proposal with benefits for our citizens. I urge the Planning Commission vote to approve the above referenced Rezoning and Special Use Permit applications.

Sincerely,

Gary M. Massie
Manager
J.S.G. Corporation

Tax Parcel Nos. 0440100015, 0440100014, 0440100013, and a portion of 0430100017

PROFFERS

HAZELWOOD FARMS, LLC

December 10, 2021

Prepared by:
Kaufman & Canoles, P.C.
4801 Courthouse Street, Suite 300
Williamsburg, Virginia 23188

HAZELWOOD FARMS, LLC PROFFERS

THESE PROFFERS ("Proffers") are made this 10th day of December, 2021, by and between **HAZELWOOD FARMS, LLC**, a Virginia limited liability company, **HHD, L.C.**, a Virginia limited liability company and **LARRY. L. HAZELWOOD, TRUSTEE OF THE LARRY L. HAZELWOOD TRUST SHARE EST. UNDER THE SAM AND NETTIE HAZELWOOD FAMILY TRUST AGREEMENT DATED NOVEMBER 5, 2017, DEBORAH H. DRUDGE, TRUSTEE OF THE DEBORAH H. DRUDGE TRUST SHARE EST. UNDER THE SAM AND NETTIE HAZELWOOD FAMILY TRUST AGREEMENT DATED NOVEMBER 5, 2017, AND R.M. HAZELWOOD, III, TRUSTEE OF THE R.M. HAZELWOOD TRUST SHARE EST. UNDER THE SAM AND NETTIE HAZELWOOD FAMILY TRUST AGREEMENT DATED NOVEMBER 5, 2017** (collectively, "Owner") (to be indexed as grantor), and **THE COUNTY OF JAMES CITY, VIRGINIA**, a political subdivision of the Commonwealth of Virginia ("County") (to be indexed as grantee), provides as follows:

RECITALS

R-1. Owner is the owner of certain real property located in James City County, Virginia, being more particularly described on EXHIBIT A attached hereto and made a part hereof (the "Property").

R-2. The Property is now zoned B1-General Business and A1-General Agricultural. The Property is designated EO – Economic Opportunity on the County's Comprehensive Plan Future Land Use Map.

R-3. Owner has applied to rezone the Property from B1 – General Business and A1-General Agricultural to EO – Economic Opportunity, with proffers. The rezoning of the Property to EO, with proffers, is consistent both with the land use designation for the Property in the County Comprehensive Plan and the statement of intent for the economic opportunity zoning district set

forth in Section 24-536 of the County Zoning Ordinance, Section 24-1 *et seq.* of the County Code of Ordinances, in effect on the date hereof (the "Zoning Ordinance").

R-4. A community impact study ("Community Impact Study") entitled "Community Impact Statement Rezoning of The Enterprise Center at Hazelwood Farms" prepared by AES Consulting Engineers, dated February 6, 2019 and revised December 2021, has been submitted to the County Planning Director for review by the County in connection with this proposed rezoning. The Community Impact Study is on file in the office of the County Planning Director.

R-5. Developer has submitted to the County a traffic impact study memorandum with enclosed exhibits and technical appendix ("Traffic Impact Study") entitled "Ch. 527 Traffic Impact Statement for Village Center and Enterprise Center at Hazelwood Farms, James City County, Virginia" prepared by DRW Consultants LLC, dated January 2019, which has been prepared to address traffic associated with the Property. The Traffic Study is on file in the office of the County Planning Director.

R-6. Developer has submitted to the County a conceptual plan of development ("Master Plan") entitled "Master Plan for Rezoning of Enterprise Center at Hazelwood Farms, Stonehouse District, James City County, Virginia", dated February 7, 2019 and last updated December 7, 2021, prepared by AES Consulting Engineers, for the Property in accordance with the County Zoning Ordinance. The Master Plan is on file in the office of the County Planning Director.

R-7. Developer has submitted to the County design guidelines for the proposed improvements to the Property ("Design Guidelines") entitled "Design Guidelines for Enterprise Centre", dated December 8, 2021, prepared by Hopke & Associates, Inc. The Design Guidelines are on file in the office of the County Planning Director.

R-8. The County constitutes a high-growth locality as defined by Section 15.2-2298 of the Virginia Code.

R-9. The provisions of the Zoning Ordinance, Section 24-1, *et seq.*, may be deemed inadequate for protecting and enhancing orderly development of the Property. Accordingly, Owner, in furtherance of the above-described application for rezoning, desires to proffer certain conditions which are limited solely to those set forth herein in addition to the regulations provided for by the Zoning Ordinance for the protection and enhancement of the development of the Property, in accordance with the provisions of Sections 15.2-2303 and 15.2-2303.4(D)(1) of the Code of Virginia, as amended (the "Virginia Code"), Ordinance N0.31A-346 adopted by the James City County Board of Supervisors on October 8, 2019 and Sec 24-16 of the Zoning Ordinance.

NOW, THEREFORE, for and in consideration of the approval by the Board of Supervisors of the County of the rezoning set forth above and the Master Plan, and pursuant to Sections 15.2-2303 and 15.2-2303.4(D)(1) of the Virginia Code, and Section 24-16 of the Zoning Ordinance, it is agreed that all of the following conditions shall be met and satisfied in developing the Property.

PROFFERS:

1. **Design**. The Property shall be developed generally in accordance with the Master Plan and Design Guidelines (to include, without limitation, the design submittal, review, and approval process contained therein) and with only changes thereto that the County or its duly authorized designee determines do not alter the basic concept or character of the development in accordance with Section 24-23(a)(2)(f) of the Zoning Ordinance in effect on the date hereof; provided, however, such development shall be expressly subject to such changes in configuration, composition and location as required by all other governmental authorities having jurisdiction over such development. The following uses on the Property shall be limited in number as indicated below:

Use	Maximum Number
Fast Food Restaurant with drive-through	1
Convenience Store with fuel sales	1
Bank with drive-through	1

2. **Water Conservation**. Water conservation standards for the Property shall be developed and submitted to and approved by the James City Service Authority ("JCSA") for general consistency with the terms of this Proffer prior to final site plan approval for development of the Property. The standards shall address such customary and reasonable water conservation measures as limitations on use of irrigation systems and irrigation wells, the use of approved landscaping materials and the use of water conserving fixtures and appliances to promote water conservation and minimize the use of public water resources. Design features, including the use of drought tolerant grasses and plantings, a water conservation plan, and drought management plan shall be implemented to accomplish the limitation on use of public water and groundwater.

3. **Nutrient Management Plan**. The owner of any portion of the Property proposed for development shall be responsible for coordinating with an agent of the Colonial Soil and Water Conservation District ("CSWCD") or, if a CSWCD agent is unavailable, a soil scientist licensed in the Commonwealth of Virginia, or other qualified professional approved by the County's Director of Planning, to conduct soil tests and to develop, based upon the results of the soil tests, customized nutrient management plans (the "Nutrient Plans") for all turf areas within the portions of the Property proposed for development. A Nutrient Plan for each portion of the Property proposed for development shall be submitted to the County Stormwater & Resource Protection Director for review and approval prior to the issuance of a Certificate of Occupancy for each portion of the Property developed. Upon approval, the owner of such portion of the Property shall be responsible for ensuring that any nutrients applied to the turf areas on such portion of the

Property be applied in accordance with the applicable Nutrient Plan or any updates or amendments thereto as may be approved by the County Stormwater & Resource Protection Director.

4. **Transportation.**

a. SJR & Phasing Plan Required. Prior to the submittal of a site plan for development within the Property, a Signal Justification Report (the "SJR") shall be prepared pursuant to VDOT IIM-TE-387.0 (or such successor standard as may then be in effect) for the Rt. 30 / Rt. 746 Old Stage Road intersection and a phasing plan ("Phasing Plan") for the following intersections shall submitted to VDOT for review and approval:

i. Traffic signal at Rt. 30 / I-64 westbound ramp junctions; and

ii. SJR Improvements at Rt. 30 / Rt. 746 Old Stage Road

b. SJR & Phasing Plan Meeting. Prior to submittal of the SJR and Phasing Plan, a scoping meeting shall be conducted with VDOT and the County to:

i. Determine any traffic study requirements; and

ii. Review any updated road improvements that have occurred, been proffered by others, or are publically funded.

c. SJR Completion, Phasing Plan Completion & Road Improvement Plans. Prior to final approval of the first site plan for development within the Property:

i. The SJR must be approved by VDOT;

ii.. A Phasing Plan for the improvements recommended in the approved SJR and, except to the extent superseded by the recommendation of the approved SJR, the improvements listed in subsection 4(f) (collectively, the "Traffic Improvements") below must be approved by VDOT;

iii. Road improvement plans containing the portion of the Traffic Improvements recommended by the Phasing Plan based on the then proposed development of

the Property shall be submitted to and approved by VDOT; and

iv. The improvements reflected in the road improvement plans described in subsection 4(c)(iii) shall be completed or guaranteed ("Guaranteed") in accordance with Section 15.2-2299 of the Virginia Code (or such successor provision) and the applicable provisions of the County Code of Ordinances (such performance assurance to be herein referred to as a "Guarantee" or "Guarantees").

d. Subsequent Approvals. Prior to approval of any site plan for development within the Property subsequent to the first site plan:

i. Road improvement plans containing the portion of the Traffic Improvements recommended by the Phasing Plan based on the then proposed development of the Property shall be submitted to and approved by VDOT; and

ii. The improvements reflected in the road improvement plans described in subsection 4(d)(i) shall be completed or Guaranteed.

e. Subsequent SJR Approval. Any subsequent SJR approved by VDOT for the two locations in subsection 4(a) above shall be deemed substituted for the SJR approval specified in subsection 4(c).

f. Intersection Improvements. The following traffic improvements shall be constructed in accordance with the Phasing Plan described above:

i. Rt. 30/Rt. 746 Old Stage Road:

A. Signalization of the intersection, either as a new signal installation or as an addition to a signal installed by others, or other intersection control improvements as determined by VDOT;

B. Addition of a second left turn lane on northbound Rt. 30 at Rt. 746 Old Stage Road;

C. Extension of the right turn lane on southbound Rt. 30 at Rt.

746 Old Stage Road to make a continuous lane with merging lane from I-64 off ramp onto Rt. 30.

D. Third northbound through lane on Rt. 30 at approach to Rt. 746 Old Stage Road and continuing to drop off lane at ramp to I-64 east;

E. Improve Rt. 746 Old Stage Road as shown on the Master Plan; and

F. Add second westbound approach lane and taper on VDOT frontage road.

ii. Rt. 30/westbound I-64 ramps:

A. Signalization of the intersection, either as a new signal installation or as an addition to a signal installed by others, or other intersection traffic control improvements as determined by VDOT; and

B. Any adjustment of pavement required for signal installation or other intersection traffic control improvements as determined by VDOT.

g. Alternative Intersection Design. If VDOT, through SJR review, requires alternative intersection design at any location in subsections 4(f)(i) and 4(f)(ii), then the improvements recommended by the approved SJR shall be substituted for the corresponding improvements listed in subsection 4(f).

h. Multi-Use Path. A VDOT shared use path in the following locations shall be included with all road improvement plans:

i. On southbound Rt. 30 from north of Ramp A (eastbound I-64 exit ramp to Rt. 30) at approximately Station 348+10 to Old Stage Road; provided, however, construction of the VDOT shared use path shall be contingent upon applicable federal and state approvals;

ii. On westbound Rt. 746 Old Stage Road from Rt. 30 to Leisure Road;

iii. On South Entrance #1 (as shown on the Master Plan) from Rt. 746

Old Stage Road to Barnes Road; and

iv. On northbound Leisure Road from Rt. 746 Old Stage Road to limits of the Property.

The foregoing shared use paths shall be located in public right of way or within an easement dedicated to public use and VDOT maintenance.

j. Barnes Road. There shall be no vehicular access to Barnes Road except in the event of emergencies.

k. Bus Stops. A public bus stop shall be included in the first site plan submitted for development within Area 3 of the Master Plan. If placed on a public road, the bus stop may include a bumpout and will have connections to the shared use path system. If placed within the private property parking lot, the bus stop will include landings for bus patrons and pedestrian connections to shared used paths on public right of way. The bus stop shall be completed or Guaranteed prior to issuance of a certificate of occupancy for the development shown on such site plan. Bus stop design shall be coordinated with the Williamsburg Area Transit Authority (WATA) prior to site plan approval to meet their design standards for shelters and pull-offs and ensure ADA accessibility. Prior to final site plan approval the bus stop location, design, and bus circulation shall be approved by WATA and the Director of Planning.

l. Trip Generation. Development of the Property shall not exceed 944 PM peak hour trips as determined by the most recent edition of the Institute of Transportation Engineers Trip Generation Manual (the "ITE Manual") at the time of each site plan approval for the development of the Property. Accordingly, each site plan for the development of the Property shall, when submitted to the County for review, contain an accounting of the PM peak hour trip generation, as determined by the ITE Manual, associated with the development proposed by such site plan, all development shown on previously approved site plans for development of the Property (except to the extent the proposed site plan is in lieu of a previously approved site plan

for development of the Property), and all development shown on site plans then under review by the County for development of the Property. No site plan for development of the Property shall be approved by the County which includes an amount of development that, together with all other development shown on previously approved site plans for development of the Property (except to the extent the proposed site plan is in lieu of a previously approved site plan for development of the Property), would generate more than 944 PM peak hour trips as determined by the ITE Manual. In determining and accounting for the foregoing PM peak hour trips: (i) internal and pass-by capture shall be determined in accordance with VDOT standards, and (ii) traffic counts for completed and occupied development on the Property may, with the approval of the County's Director of Planning, be substituted for ITE Manual estimated trips.

5. **Water and Sewer Master Plans**. Owner shall submit to the JCSA for its review and approval an overall master water and sanitary sewer plan for the Property prior to the submission of any development or subdivision plans for the Property. The overall water master plan will be submitted as a skeletized layout reflecting the major pressure lines of the system with calculations justifying the line sizes. The purpose of the overall water master plan is to be sure the "system backbone" is appropriately sized for total build-out and not handled on a section-by-section submittal basis.

6. **Headings**. All section headings and subheadings of these Proffers are for convenience only and shall not be read as a part of these Proffers or utilized in interpretation thereof.

7. **Delegation of Subsequent Approvals**. The County Board of Supervisors by accepting these Proffers is exercising its legislative function. While these Proffers provide for subsequent approvals by the County or by its duly authorized designees appointed by the County, such subsequent approvals by any duly authorized designee of the County shall not include the exercise of any legislative function.

8. **Severability**. In the event that any clause, sentence, paragraph, section or subsection of these Proffers shall be adjudged by any court of competent jurisdiction to be invalid or unenforceable for any reason, including a declaration that it is contrary to the Constitution of the Commonwealth of Virginia or of the United States, or if the application thereof to any owner of any portion of the Property or to any government agency is held invalid, such judgment or holding shall be confined in its operation to the clause, sentence, paragraph, section or subsection hereof, or the specific application thereof directly involved in the controversy in which the judgment or holding shall have been rendered or made, and shall not in any way affect the validity of any other clause, sentence, paragraph, section or provision hereof.

9. **Successors and Assigns**. These Proffers shall be binding upon and shall inure to the benefit of the parties hereto, and their respective heirs, successors and/or assigns; provided, however once a party ceases to own any portion of the Property, such party shall have no continuing liability hereunder.

10. **Void if Rezoning Not Approved**. In the event that any of the proposed rezoning sought by this application is not approved by the County as submitted or is overturned by subsequent judicial determination, these Proffers shall be null and void.

11. **Reasonable Proffers**. The Owner, as evidenced by its signature below, deems these proffers to be reasonable and appropriate.

[SIGNATURES APPEAR ON THE FOLLOWING PAGES]

[COUNTERPART SIGNATURE PAGE TO PROFFERS]

WITNESS the following signatures, thereunto duly authorized:

HAZELWOOD FARMS, LLC, a Virginia limited liability company

By: Deborah H. Drudge

Name: Deborah H. Drudge

Title: Manager

COMMONWEALTH OF VIRGINIA
AT LARGE, to-wit:

The foregoing instrument was acknowledged before me this 12 day of January, 2022, by Deborah H. Drudge of Hazelwood Farms, LLC, a Virginia limited liability, in its behalf.

Stephanie G. Stowell
Notary Public

My commission expires: 10-31-25
My registration number is: 368288

STEPHANIE G. STOWELL
NOTARY PUBLIC
Commonwealth of Virginia
Reg. #368288
My Commission Expires 10-31-25

[COUNTERPART SIGNATURE PAGE TO PROFFERS]

Larry L. Hazelwood

Larry. L. Hazelwood, Trustee of the Larry L. Hazelwood Trust Share est. under The Sam and Nettie Hazelwood Family Trust Agreement Dated November 5, 2017

COMMONWEALTH OF VIRGINIA
AT LARGE, to-wit:

The foregoing instrument was acknowledged before me this 12th day of January, 2022, by Larry. L. Hazelwood, Trustee of the Larry L. Hazelwood Trust Share est. under The Sam and Nettie Hazelwood Family Trust Agreement Dated November 5, 2017.

Mary A. Meades
Notary Public

My commission expires: 12/31/2024
My registration number is: 7861155

Mary A. Meades
Commonwealth of Virginia
Notary Public
Commission No. 7861155
My Commission Expires 12/31/2024

[COUNTERPART SIGNATURE PAGE TO PROFFERS]

Deborah H. Drudge

Deborah H. Drudge, Trustee of the Deborah H. Drudge Trust Share est. under The Sam and Nettie Hazelwood Family Trust Agreement Dated November 5, 2017

COMMONWEALTH OF VIRGINIA
AT LARGE, to-wit:

The foregoing instrument was acknowledged before me this 12 day of January, 2022, by Deborah H. Drudge, Trustee of the Deborah H. Drudge Trust Share est. under The Sam and Nettie Hazelwood Family Trust Agreement Dated November 5, 2017.

Stephanie G. Stowell
Notary Public

My commission expires: 10-31-25
My registration number is: 368288

STEPHANIE G. STOWELL
NOTARY PUBLIC
Commonwealth of Virginia
Reg. #368288
My Commission Expires 10-31-25

[COUNTERPART SIGNATURE PAGE TO PROFFERS]

R.M. Hazelwood Trustee

R.M. Hazelwood, III, Trustee of the R.M. Hazelwood Trust Share est. under The Sam and Nettie Hazelwood Family Trust Agreement Dated November 5, 2017

STATE OF Florida
AT LARGE, to-wit:

The foregoing instrument was acknowledged before me this 12 day of January, 2022, by R.M. Hazelwood, III, Trustee of the R.M. Hazelwood Trust Share est. under The Sam and Nettie Hazelwood Family Trust Agreement Dated November 5, 2017.

Leeanna Parsons
Notary Public

My commission expires: June 30, 2025
My registration number is: HH 108347

LEEANNA PARSONS
MY COMMISSION EXPIRES
JUNE 30, 2025
HH 108347
Bonded thru
Notary Public Underwriters
NOTARY PUBLIC, STATE OF FLORIDA

EXHIBIT A

All those certain pieces or parcels of land situate lying and being in James City County, Virginia, shown and designated as "HAZELWOOD FARMS, L.L.C., 9400 BARNES ROAD, TAX MAP#: 0430100017 (PART 2) INST. NO. 980023823 P.B. 29 PG. 42, AREA= 5,689,039 S.F.+/- OR 130.602 AC+/- (TO SURVEY TIE LINES), HAZELWOOD FARMS, L.L.C., 275 OLD STAGE ROAD, TAX MAP#: 0430100012 AND 0440100013, INST. NO. 980023823, AREA= 8,439,593 S.F. +/- OR 193.746 AC+/- (TO SURVEY TIE LINES), HAZELWOOD FARMS, L.L.C., TAX MAP#: 0440100014, INST. NO. 980023823, AREA= 66,686 S.F. +/- OR 1.531 AC+/-, and TRUSTEES OF THE R.M. HAZELWOOD, JR. REVOCABLE TRUST AND TRUSTEES OF THE NETTIE A. HAZELWOOD RESIDUARY TRUST, 301 OLD STAGE ROAD, TAX MAP#: 0440100015, INST. NO. 14008204W, AREA= 100,223 S.F. +/- OR 2.301 AC +/-" on that certain plat entitled "PLAT OF SURVEY EIGHT PARCELS OF LAND CONTAINING A TOTAL AREA OF 407.236 ACRES± PREPARED FOR HAZELWOOD FARMS, L.L.C. A VIRGINIA CORPORATION STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA" made by AES Consulting Engineers, dated January 14, 2016 and recorded on January 27, 2016 in the Clerk's Office of the Circuit Court of the City of Williamsburg and James City County, Virginia as Instrument No. 160001266.

Unapproved Minutes of the January 5, 2022
Planning Commission Regular Meeting

Z-19-0006 and SUP-19-0005. Hazelwood Farms - The Enterprise Center

A motion to Approve was made by Frank Polster, the motion was Passed.
AYES: 3 NAYS: 2 ABSTAIN: 0 ABSENT: 0
Ayes: Null, Polster, Leverenz, O'Connor Nays: Rose, Krapf

Mr. Thomas Wysong, Senior Planner, stated that Mr. Tim Trant of Kaufman and Canoles has applied on behalf of the Hazelwood Farm property owners to rezone approximately 328 acres from its current zoning of B-1, General Business and A-1, General Agricultural to the EO, Economic Opportunity zoning district to allow for up to 3,220,000 square feet of warehouse, industrial and office use.

Mr. Wysong further stated that accompanying this Rezoning is a request for a Special Use Permit (SUP) to allow for the following uses:

- fast food restaurants;
- the manufacture and processing of textiles and textile products in structures more than 10,000 square feet;
- heavy equipment sales and service with major repair under cover or screened with landscaping and fencing from adjacent property;
- machinery sales and service with major repair under cover;
- a convenience store pursuant to Section 24-11(a)(1);
- any commercial building or group of buildings that exceeds 10,000 square feet of floor area pursuant to Section 24-11(a)(2) of the County Code;
- any commercial building or group of buildings, not including office uses, which generates, or would be expected to generate, a total of 100 or more additional trips to and from the site during the peak hour of the operation pursuant to Section 24-11(a)(3) of the County Code; and buildings, additions, and expansions requiring an SUP pursuant to Section 24-11(b) of the County Code; and
- extension of public water and sewer facilities up Route 30 and along Route 746 to serve this property

Mr. Wysong stated that since the October 6, 2021 Planning Commission meeting, the applicant has made several changes to this application. Mr. Wysong stated that specifically, the applicant has removed the apartments and multifamily component from the SUP application, meaning there is no longer a residential component for this project. Mr. Wysong further stated that the applicant has also removed the truck terminal component from the SUP application. Mr. Wysong noted that the applicant has also increased the amount of warehouse, industrial and office use from 2,920,000 to 3,220,000, with this increase located in the former proposed location of the residential uses.

Mr. Wysong stated that the site is located inside the Primary Service Area (PSA) and is designated for Economic Opportunity – Barhamsville Interchange Area in the adopted 2045 Comprehensive Plan. Mr. Wysong stated that the recommended primary uses include industrial, light industrial,

office, medical/research, and/or tourist attraction uses with secondary uses such as retail commercial being limited in amount and type to support the primary uses.

Mr. Wysong further stated that staff finds multiple favorable factors for this application. Mr. Wysong stated that the proposed uses for this site align with the Comprehensive Plan; the applicant is proposing proffers to mitigate the impacts associated with this rezoning, which include transportation improvements to the surrounding road network, design guidelines for development of the property, use limitation for certain commercial uses; and the submittal of a water and sewer master plan prior to site development.

Mr. Wysong stated that furthermore, the County is proposing conditions to mitigate impacts associated with the specially permitted uses. Mr. Wysong stated that these conditions include enhanced landscape buffering along the Barnes Road, Route 30, Leisure Road, Route 746 and Interstate-64 rights-of-way, enhanced site design and architectural design, and specific restrictions regarding location and site features for certain specially permitted commercial uses.

Mr. Wysong stated that staff finds that the proposed Rezoning and SUP will not negatively impact surrounding development, and that the proffers and proposed conditions will help mitigate impacts generated by the proposal. Mr. Wysong stated that staff also finds that the development of the property is consistent with the Comprehensive Plan.

Mr. Wysong stated that staff recommends that the Planning Commission recommend approval of this application to the Board of Supervisors, subject to the proposed proffers and SUP conditions.

Mr. O'Connor called for disclosures from the Commission.

Mr. Krapf stated that he met with the applicant after the October 6, 2021 Planning Commission meeting. Mr. Krapf further stated that he spoke with Mr. Trant prior to the meeting today. Mr. Krapf noted that he is on the Board of an organization that will be speaking during the Public Hearing. Mr. Krapf stated that he believes that he can make a fair and objective determination on the application.

Mr. Polster stated that he attended the December 15, 2021 Community Meeting hosted by the applicant. Mr. Polster stated that he has also spoken several times with the traffic consultant, Mr. Dexter Williams and with Mr. Morrison. Ms. Null stated that she attended the December 21, 2021 Community Meeting and has also had several conversations with Mr. Trant.

Mr. O'Connor stated that he has not had any conversations with Mr. Trant since the one noted for the October 2021 Planning Commission Meeting.

Mr. O'Connor opened the Public Hearing.

Mr. Tim Trant, Kaufman and Canoles, representing Hazelwood Farms, made a presentation to the Commission in support of the application.

Mr. Larry Hazelwood, 2420 Ocean Shore Crescent, addressed the Commission to provide context to the Hazelwood family's decision to submit plans to ensure the orderly and appropriate development of the property.

Ms. Null noted that the property is in a foreign trade zone and inquired what benefits are associated with a foreign trade zone.

Mr. Hazelwood explained that the foreign trade zone allows a business to import materials on a tariff free basis to manufacture a product. Mr. Hazelwood further stated that the northern extent of the foreign trade zone ends in James City County. Mr. Hazelwood stated that with transportation being key to the success of import and export, the property's location is prime for a manufacturing operation.

Mr. Polster inquired about assurances are provided in the Design Guidelines that the treeline and buffering on Leisure Road would be intact once a building is constructed.

Mr. Trant stated that the 100 feet would have to remain undisturbed. Mr. Trant further stated that at site plan review, the existing vegetation would have to provide adequate screening or be supplemented according to the county's landscape guidelines.

Mr. Polster inquired about the traffic accommodations on Barhamsville Road that allow it to maintain a Level of Service (LOS) C.

Mr. Dexter Williams, DRW Consultants, LLC, stated that there is an existing left turn lane onto Old Stage Road and this development will add a second turn lane as part of the signalization. Mr. Williams further stated that there will be three through lanes and that one will drop out at the ramp to I-64.

Mr. Polster inquired whether there was direct access to the property from I-64 when coming from the north.

Mr. Williams stated that the existing pavement would be rebuilt to accommodate direct access.

Mr. Polster inquired about the cumulative cap on trip generations and how that would be monitored.

Mr. Wysong stated that each use would be required to include a current trip generation.

Mr. Polster inquired if the site plan would be approved if the cumulative cap were exceeded.

Mr. Wysong stated that it would not be approved.

Dr. Rob Rose inquired if the traffic study was limited to the project or if it included a broader area.

Mr. Trant stated that because of the proximity to the interstate, a specific type of traffic study was required that would have a wider scope and include all affected roads and intersections. Mr. Trant

further stated that the traffic study used an aggressive model for estimating future growth. Mr. Trant stated that the study also incorporated the current and future impacts of known development.

Mr. Rich Krapf inquired if it were possible that the applicant might come back with an amendment to raise the trip generation cap.

Mr. Trant stated that, in theory, it is possible. Mr. Trant further stated that there were limitations on the uses that generate a large number of trips. Mr. Trant stated that the light manufacturing uses would not generate the same amount of traffic, therefore, more of those uses could be accommodated under the current cap.

Dr. Rose inquired about the use of Leadership in Energy and Environmental Design (LEED) building techniques and whether the applicant would eventually seek LEED certification.

Mr. Hopke noted that to obtain LEED Certification, the developer must keep track of the items that generate points for certification and then apply to the Green Building Council for verification. Mr. Hopke stated that the certification process is time consuming and expensive, so many developers opt to use the techniques but not apply for the certification.

Mr. Trant stated that there are assurances for environmental protection in addition to the commitment to use LEED techniques.

Dr. Rose inquired whether any consideration was given to encouraging local restaurants and businesses to locate within the project.

Mr. Trant stated that since no end users have been identified, the project is very open to local and small business. Mr. Trant stated that the goal of the project is to prevent sprawling, unplanned development.

Ms. Leverenz inquired about the plan for buffering along Leisure Road where there is currently no vegetation.

Mr. Trant stated that the area would have to be populated in accord with the County's guidelines. Mr. Trant stated that this would most likely happen when there is a site plan submitted for development of the parcel.

Ms. Leverenz inquired if this was intended to be a screening buffer.

Mr. Wysong confirmed. Mr. Wysong stated that there would be an increase of approximately 10% in the mix of evergreen trees and shrubs. Mr. Wysong further stated that 45% of the evergreens would have to reach a minimum height of 40 feet at maturity.

Ms. Leverenz inquired it there would be lower growing evergreens to provide full coverage.

Mr. Wysong confirmed.

Ms. Leverenz inquired about the plans for Land Bay 6 until it is developed.

Mr. Trant stated that for the time, there would be no changes to the use other than possibly establishing some infrastructure to make the property desirable to end users.

Ms. Linda Rice, 2394 Forge Road, representing Friends of Forge Road, addressed the Commission in opposition to the application.

Mr. Ellis Colthorpe, 4945 Settler's Market Boulevard, in support of the application.

Mr. Erik Conradi, 5 Clarendon Court, addressed the Commission in support of the application.

Mr. John Fuqua, 207 Highfield Drive, addressed the Commission in opposition to the application.

Mr. Ed Lampitt, 2616 Meadow Lake Drive, addressed the Commission in support of the application.

Mr. Kimber Smith, 3501 Heritage Landing Road, addressed the Commission in support of the application.

Mr. Bruce Beiderman, 9120 Manorwood Way, addressed the Commission in opposition to the application.

Ms. Jennifer Weinstein, 3237 Leighton Boulevard, representing Save Rural James City County, addressed the Commission in opposition to the application.

Ms. Kelly Wagnitz, 8948 Coco's Path, addressed the Commission in opposition to the application.

Mr. Kyle Seal, 3248 Oak Branch Lane, addressed the Commission in opposition to the application.

Mr. Gary Massie, 8644 Merry Oaks Lane, addressed the Commission in support of the application.

Ms. Martha Ray, 7440 Sturgeon Point Road, addressed the Commission in opposition to the application.

Mr. Cecil Bray, 1704 Centennial Drive, addressed the Commission in opposition to the application.

Ms. Stephanie Dean Ripchick, 4901 Holly Fork Road, addressed the Commission in opposition to the application.

Ms. Michelle Eardley, 2996 Forge Road, addressed the Commission in opposition to the application.

Mr. Robert Hall, 136 Leisure Lane, addressed the Commission in opposition to the application.

As no one else wished to speak, Mr. O'Connor closed the Public Hearing.

Mr. O'Connor opened the floor for discussion by the Commission.

Mr. Krapf thanked the applicant for conducting the three Community Meetings and for willingly removing the truck terminal and the residential units from the SUP. Mr. Krapf stated that both the previous and current Comprehensive Plan identified Economic Development as a use for the property. Mr. Krapf further stated that the rezoning incorporates a number of strong elements and safeguards. Mr. Krapf stated that it is a well thought out plan; however, he still has reservations about the open-ended nature of the SUP items. Mr. Krapf further stated that many times when you try to mitigate certain impacts such as traffic, it creates unintended consequences. Mr. Krapf stated that this application, if approved, will forever change upper James City County. Mr. Krapf noted that he wished the County had been able to pursue the recommended uses for Rural Economic Development that were developed in 2014. Mr. Krapf stated that because of the open-ended SUP uses and the far-reaching impacts on upper James City County, he is not able to support the application as it is currently presented.

Mr. Polster stated that as the Commission developed the 2045 Comprehensive Plan, one of the priorities was developing strategies to protect and preserve the rural character of the County. Mr. Polster further stated that the Commission had a charter to look at the Primary Service Area (PSA) to determine if any changes were needed to indicate where development would be appropriate. Mr. Polster stated that the Hazelwood property was placed in the PSA and designated Economic Opportunity because the County deemed it appropriate for development. Mr. Polster further stated that Stonehouse has already changed the character of the Upper County. Mr. Polster further stated that the proposal addresses concerns about traffic safety, provides controls to ensure appropriate development, and provides economic benefits to the County through the taxes that will be paid. Mr. Polster stated that he intends to support the application.

Ms. Null stated that she has reviewed the application extensively. Ms. Null noted that the property is currently zoned B-1, General Business, and is not designated as rural lands. Ms. Null stated that the property could be developed by-right with any number of assorted uses. Ms. Null further stated that under the proposed Master Plan, development is confined by County rules and guidelines. Ms. Null stated that with all of the County oversite, the development will be orderly and attractive. Ms. Null stated that the traffic concerns will be mitigated. Ms. Null stated that the project will be beneficial to the community, and she intends to support the application.

Dr. Rose expressed appreciation for the Public Hearing comments. Dr. Rose stated that having a Master Plan provides assurances as opposed to the unknown impacts of by-right development. Dr. Rose stated that it is a challenge to approve something of this scale and impact without a clear picture of what it will ultimately include, the impact on the community, and the impact on other businesses.

Ms. Leverenz stated that her job as a Planning Commissioner is to consider how the proposal fits with and supports the County's long-range plan which is the Comprehensive Plan. Ms. Leverenz stated that she is not as concerned by the open-endedness of the application because the face of

industry is changing in response to the pandemic and the increased use of automation. Ms. Leverenz stated that she is inclined to support the application.

Mr. O'Connor stated that in the recent Comprehensive Plan update, the community response was to preserve the rural character of the County, with rural lands being defined as being outside of the PSA. Mr. O'Connor stated that what the citizens also indicated is that if those rural lands are protected, high density development will be acceptable inside the PSA. Mr. O'Connor stated that he was in the minority regarding the residential component of the proposal. Mr. O'Connor stated that including residential development would be in line with the concept of complete communities and serve as a transition between the existing neighborhoods and the commercial development. Mr. O'Connor stated that there would likely be public sentiment against any type of development on the property. Mr. O'Connor further stated that this application is meeting many of the goals of the Comprehensive Plan. Mr. O'Connor stated that the development plan was created with good intent and the applicant was willing to remove some of the elements that were of greatest concern. Mr. O'Connor further stated that by placing the development in this location it could potentially limit development in other locations such as Anderson's Corner because the need for the services would be lower. Mr. O'Connor stated that he intends to support the application.

Dr. Rose stated that this isn't a question of putting the development here or putting it somewhere else. Dr. Rose stated that there are many ways of developing rural lands that have not been considered for this property. Dr. Rose stated that there are many promises with the application but no guarantees. Dr. Rose stated that recommending approval of the application would mean relying on a great unknown.

Ms. Null stated that this is not a case of build and they will come, but rather a case of build as they come.

Mr. Krapf stated that his concern over the open-endedness was the language "any building over 10,000 square-feet." Mr. Krapf stated that without knowing the end user, it is difficult to gauge the impacts and whether th mitigations will be adequate.

Ms. Leverenz inquired if Mr. Krapf was talking about phasing the development.

Mr. Krapf stated that because of the irrevocable change to the Upper County, what he would prefer is a rezoning application that provided a conceptual master plan and out lined desired by-right uses and considering specially permitted uses on a case-by-case basis. Mr. Krapf further stated that his wish was that the County had aggressively campaigned to bring in the businesses recommended by the Rural Economic Development Committee to create a new vision for the Upper County.

Mr. O'Connor commented that he was surprised to be reminded of how little income farming uses generate. Mr. O'Connor noted that farming uses are not nearly as valuable to the County's revenue as one might believe.

Mr. Polster made a motion to recommend approval of the rezoning and SUP and acceptance of the voluntary proffers.

On a roll call vote the Commission voted to recommend approval of Z-19-0006 and SUP-19-0005. Hazelwood Farms - The Enterprise Center. (4-2)

AGENDA ITEM NO. K.1.

ITEM SUMMARY

DATE: 2/8/2022

TO: The Board of Supervisors

FROM: Teresa J. Saeed, Deputy Clerk

SUBJECT: Consideration of personnel matter, the appointment of individuals to County Boards and/or Commissions pursuant to Section 2.2-3711 (A)(1) of the Code of Virginia

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REVIEWERS:

Department	Reviewer	Action	Date
Board Secretary	Saeed, Teresa	Approved	1/31/2022 - 9:28 AM

AGENDA ITEM NO. K.2.

ITEM SUMMARY

DATE: 2/8/2022

TO: The Board of Supervisors

FROM: Michael Woolson, Section Chief - Resource Protection

SUBJECT: Appointment - Chesapeake Bay Board and Wetlands Board

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ATTACHMENTS:

Description	Type

REVIEWERS:

Department	Reviewer	Action	Date
Engineering & Resource Protection	Small, Toni	Approved	1/21/2022 - 4:05 PM
Development Management	Holt, Paul	Approved	1/21/2022 - 4:08 PM
Publication Management	Pobiak, Amanda	Approved	1/21/2022 - 4:20 PM
Legal Review	Kinsman, Adam	Approved	1/24/2022 - 9:38 AM
Board Secretary	Saeed, Teresa	Approved	1/24/2022 - 9:41 AM
Board Secretary	Rinehimer, Bradley	Approved	2/1/2022 - 10:15 AM
Board Secretary	Saeed, Teresa	Approved	2/1/2022 - 10:27 AM

AGENDA ITEM NO. K.3.

ITEM SUMMARY

DATE: 2/8/2022

TO: The Board of Supervisors

FROM: Rebecca Vinroot, Director of Social Services

SUBJECT: Appointments - Colonial Behavioral Health Board

ATTACHMENTS:

Description	Type

REVIEWERS:

Department	Reviewer	Action	Date
Social Services	Vinroot, Rebecca	Approved	1/27/2022 - 3:47 PM
Publication Management	Daniel, Martha	Approved	1/27/2022 - 3:50 PM
Legal Review	Kinsman, Adam	Approved	1/28/2022 - 3:19 PM
Board Secretary	Saeed, Teresa	Approved	1/31/2022 - 8:32 AM
Board Secretary	Rinehimer, Bradley	Approved	2/1/2022 - 10:11 AM
Board Secretary	Saeed, Teresa	Approved	2/1/2022 - 10:13 AM

AGENDA ITEM NO. K.4.

ITEM SUMMARY

DATE: 2/8/2022

TO: The Board of Supervisors

FROM: Teresa J. Saeed, Deputy Clerk

SUBJECT: Appointment - Planning Commission

ATTACHMENTS:

Description	Type

REVIEWERS:

Department	Reviewer	Action	Date
Board Secretary	Saeed, Teresa	Approved	2/1/2022 - 2:59 PM

AGENDA ITEM NO. L.1.

ITEM SUMMARY

DATE: 2/8/2022

TO: The Board of Supervisors

FROM: Teresa J. Saeed, Deputy Clerk

SUBJECT: Adjourn until 1 pm on February 22, 2022 for the Business Meeting

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REVIEWERS:

Department	Reviewer	Action	Date
Board Secretary	Saeed, Teresa	Approved	1/28/2022 - 3:35 PM